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As an outgrowth of concern with whether or not the present content of teacher education affects the behavior of teachers in the classroom, a study was designed to compare the behavior of 52 secondary education students in a conventional program with that of 62 students in an experimental program. The experimental program coordinated laboratory experiences of observation and participation with selected readings and seminars in the foundation areas of psychology, philosophy, sociology, and anthropology. Data derived from the Classroom Observation Record, a system of interaction analysis, the National Teachers EXAMINATION (NTE), and student teaching grades was analyzed using t-test and analysis of variance. Results showed significant differences in the teaching behavior of the two groups: the experimental group received more desirable behavioral ratings, but the control group made significantly higher scores on the Professional Education Section of the NTE. The implications are that programs stressing possession of factual information about professional content are less likely to produce desirable teacher behavior than are those stressing laboratory experiences which are made relevant to content and theory. Included are a 15-item bibliography; 34 statistical tables; and a 40-page description of the experimental program, most of it drawn from the diary of an observer-participant. (JS)

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An Experimental Study of
Professional Education For Secondary Teachers

By

Director: J. T. Sandefur

Associate Director: Alex A. Daughtry

Project Staff Members: James Bell
Jeanette Bigge
Laurence C. Boylan
Roger Pankratz

A
Final Report

Cooperative Research Project 2897

U. S. Office of Education

Kansas State Teachers College
Emporia, Kansas
July, 1967

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The successful completion of this study was the result of the cooperative effort of a large number of people. Although the efforts of all are sincerely appreciated, room will not permit the listing of the names of everyone who assisted. The Principal Investigator would like to give special recognition to the following people who rendered invaluable service to the project:

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Last, but certainly not least, Dr. Roger Pankratz made himself invaluable to the Director during the last days of the project when computers broke down and programs failed to work. After having served as an independent observer for the project during the fall semester of 1966, Dr. Pankratz joined the faculty of the college on a part-time basis in the spring of 1967 and became a full-time member of the faculty in June, 1967. His interest in the project and his help beginning in January, 1967, warrant his name being included on the project staff.

J. T. Sandefur, Project Director
Kansas State Teachers College
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1967

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CHAPTER I

INTRODUCTION

I. PROBLEM

Research has been increasing among educators concerning the content and the quality of professional education courses in teacher education. Criticisms of professional education have ranged a continuum from wholehearted support of the status quo by some professional educators to bitter condemnations by others. Recent books by Dr. James Koerner[1] and Dr. James B. Conant[2] have called national attention to the controversy.

Stripped of the many organizational issues and value controversies surrounding any discussion of teacher education, one basic concern remains: that is, whether the present content of teacher education affects the behavior of teachers in the classroom. There is considerable reason to believe that much of what is now classified as content in teacher education could not be defended as valid content if the criterion for validity were to be defined as the extent to which it affects teacher behavior. Despite the continuing debate over the value of professional education courses in the preparation of teachers, valid research which either affirms or negates the value of such courses has been almost nonexistent.

Undoubtedly, a part of the problem has revolved around the inability of educators to identify and organize knowledge related to teaching and learning in a systematic fashion. An equally important dimension of the problem concerns the manner in which content and professional experiences are integrated during the period of professional preparation. There seems to be no good reason why the content of professional education cannot be presented in such a way as to exemplify the best that is known about teaching; and, in the case of professional preparation, this would include a direct effort to tie together content and experience in a unified program. Consequently, the burden of this investigation has been threefold: (1) to identify and organize knowledge related to teaching and learning in a systematic fashion; (2) to design and implement a series of laboratory experiences to accompany the professional content and thereby eliminate the traditional lag between theory and practice; and (3) to incorporate both the content and companion laboratory experiences into a new design for the presentation of professional education and to test experimentally the new design against the traditional course offerings in terms of consequent teacher behavior.

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[1] James D. Koerner, The Miseducation of American Teachers Boston: Houghton-Mifflin Company, 1963, p. 16.

[2] James B. Conant, The Education of American Teachers New York: McGraw-Hill Book Company, Inc., 1960, pp. 77-78.

II. OBJECTIVES

The primary objective of the study has been to design and to test an experimental program for the presentation of professional education to prospective secondary teachers. The experimental program was designed to examine the proposition that valid content in teacher education, that is, content which affects teacher behavior in the teaching-learning situation, could be best achieved through the integration of professional content with companion laboratory experiences, both presented in the light of the best that is known about the teaching-learning process.

The study as initially proposed was designed to investigate two basic questions relevant to the experimental program:

A. That students enrolled in an experimental teacher education program which emphasized the integration of observation and participation experiences in a non-structured (in terms of formal course structure) study of professional content would achieve as well on the professional content section of the National Teacher Examination as students who followed a formal course structure in the study of professional education.

B. That students enrolled in the experimental program would be rated as more effective at the end of their student teaching experience by independent observers using the Classroom Observation Record than would students following a more conventional program.

As the study progressed, however, it became evident that the experimental program would not be adequately tested through an examination of the two questions and that a more elaborate set of hypotheses needed to be formulated and tested by the experimental design.

C. HYPOTHESES

1. There is no significant difference in the teaching behavior of students enrolled in the experimental program and those enrolled in the control program as measured by independent observers using the Classroom Observation Record.

2. There is no significant difference in the behavior of the public school pupils taught by either the experimental and the control students as measured by independent observers using the Classroom Observation Record.

3. There is no significant difference in the teaching patterns of the experimental and the control students as measured by independent observers using a sixteen-category system of interaction analysis.

4. There is no significant difference in the grades earned in student teaching between the experimental and the control students.

5. There is no significant difference in the scores earned on the professional information section of the National Teachers Examination by the experimental and the control students.

III. RELATED RESEARCH: A REVIEW OF THE LITERATURE

Professional literature abounds with criticisms of professional education and with testimonials for laboratory experiences. Research which has attempted to test the effectiveness of the laboratory approach as the major means of providing professional education is virtually non-existent. This review of the literature has been divided into three sections: (1) current criticisms of professional education, (2) trends in the application of laboratory experiences, and (3) experimental programming of professional education. Because of the abundance of materials dealing with the first two, an effort has been made to present only a representative sampling of the writings in these areas. The third section is as complete as the investigator has been able to make it.

Current Criticisms of Professional Education

Fred T. Wilhelms of the San Francisco State College Teacher Education Project has written:

> Teacher education, which exists to influence the behavior of teachers - should itself, be a model in applying what is known about learning and teaching, conceived in terms of the permanent modification of behavior. In actual fact, it has not generally been regarded by its students as offering a particularly good learning situation; all too often they have assessed it as dull, banal, wordy and repetitiously theoretical, and out of touch with reality. Furthermore - and this is more truly important - it has not been notably effective in generating the very behavior patterns which constitute its central purpose.[3]

A common criticism of pre-service professional education is that it is not "internalized" by the student. The criticism implies that the theory of professional education is designed for the future needs of the student and cannot be subjected to immediate functional application. Consequently, the student is likely to view the professional courses as unrealistic in their attempt to provide solutions for problems which do not yet exist.

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[3] Fred T. Wilhelms, "The San Francisco State College Teacher Education Project," The Journal of Teacher Education, 12:209-215, June, 1961.

The San Francisco State College Teacher Education Project has taken the position that the progression from a preliminary accumulation of theory to a later integration of this theory and its application to reality has always been pedagogically unsound. The director of the project contends that it takes no great genius to predict some of the difficulties which arise out of such a system and that experienced educators have observed such common problems as these:[4]

> (1) The theoretical material which was presumably learned in the earlier stages often "just isn't there" when the time comes to apply it. Either the student never really mastered it or he acquired it in such an out-of-context fashion that he has difficulty relating it to his task.
>
> (2) Having had little real contact with children in the actual school situation, the student in psychology courses lacks a developed apperceptive base for understanding the theoretical content he is asked to master. He may acquire the vocabulary and be able to state the principles, but they have for him inadequate rooting in reality and therefore little real meaning.
>
> (3) Similarly, the student lacks aroused motivation. Having never faced, even in a small way, the grave and complex problems which perpetually challenge the inexperienced teacher, he often complains of "lack of content" even while his class is dealing with problems which defy the best minds in the profession.
>
> (4) The student - especially if he is an able and sensitive one - may be led to a shallow-rooted acceptance of a set of theoretical constructs. His aspiration level goes very high. Then his pretty image is shattered by sudden contact with harsh realities and often he overreacts in cynical defeatism.
>
> (5) With some uneasy foreknowledge of the above, many students never really commit themselves to their professional preparation, feeling that it is "just theory" and that they will have to discard it later anyway.

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[4] Ibid, p. 209.

One of the most widely known critics of teacher education, Dr. James B. Conant, directs the following remarks to existing teacher training programs:

> There are certain basic procedures and policies in all types of institutions that could be improved and it is in this area that colleges and universities should be attempting to raise their standards. For example, I should like to register my dissatisfaction with the way I have seen subjects studied in both colleges that train few teachers and those exclusively concerned with teacher training. The use of a textbook may be a necessary evil; but I hope that the dreary discussions I have heard in classes of thirty are the exception and not the rule. One would expect that a stimulating lecture could from time to time, set the tone; the use of closed-circuit T. V. makes it possible to direct such lectures to an unlimited audience. Individual reading assignments resulting in short essays and conferences in small groups should, but rarely do, characterize the collegiate methods of instructions as contrasted with high school methods, and would correspond to the increased maturity of the student.
>
> I have found other unfortunate practices in many colleges: the use of graduate students as teaching assistants placed in charge of "sections" of freshmen courses; heavy dependence on anthologies and textbooks; pretentious reading lists, which only a few students take seriously; and lectures poorly delivered by uninspired teachers.
>
> I am also far from pleased with the reliance of most colleges and universities on conventional patterns of courses. Just as the notion that education can only be measured out in units of semester hours has become a sacred cow, so has the concept of "course."[5]

Perhaps the most outspoken critic of education today is James D. Koerner, president of the Council for Basic Education. A succinct statement which typifies the Koerner point of view toward professional education can be excerpted from his recent book:

> Professional education suffers very greatly from a lack of congruence between the actual performance of its graduates and the training programs through which they are put. There is what can only be called an appalling lack of evidence to support the wisdom of this or that kind of professional training for teachers. This does not mean that professional training has no value. It means that, until a reliable method is developed for connecting the training program with the on-the-job performance of teachers, there should be much less rigidity in those programs and much more modest claims made for them.[6]

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[5] Conant, op. cit., pp. 77-78.

[6] Koerner, op. cit., p. 16.

Trends in the Use of Laboratory Experiences

There is an increasing emphasis in teacher education upon laboratory experience as a vital, perhaps the single most important part of teacher education. Student teachers, neophyte teachers, and experienced teachers seem to endorse this judgment. A questionnaire study by the National Council of Independent Schools a few years ago revealed that

> practice teaching is the part of professional training most widely and vigorously approved by the independent school teachers who have experienced it, even those who reported that they received little value from the rest of their training at schools of education.[7]

Dr. Emerson Shuck, Dean of the College of Liberal Arts, Bowling Green State University, points out that despite the chorus of approval from all quarters for field or laboratory experiences, the practices across the country in setting up these experiences have been, to say the least, uneven. He states that there is almost no consistent body of research or scholarship to provide a firm basis for objective analysis of effective laboratory experiences. Dr. Shuck suggests:

> Therefore, we must proceed somewhat cautiously in spite of a sense of urgency to suggest improvements, recognizing that good sense and experience are our present guides in a complex and somewhat prejudiced area of debate. We can hope that future empirical research will provide criteria to assist further advances, and we can call insistently for such research.[8]

Madeline S. Levine,[9] Associate Professor of Education at New York University, described a program at that institution in which laboratory experiences for prospective teachers were begun as early as the freshman year. This particular experience was not working with students directly, but was concentrated on working in the school office. Even with this limited contact, the students reported they felt that they had gained an increased understanding of children. Dr. Levine reported:

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[7] Emerson Shuck, "Field or Laboratory Experience in Teacher Education," The Journal of Teacher Education, 12:271-274, September, 1961.

[8] Ibid, p. 271.

[9] Madeline S. Levine, "Extending Laboratory Experiences" Part II, Journal of Teacher Education, 12:29-35, March, 1961.

> When their reactions were analyzed, for instance, it became clear that the students, almost without exception, felt that the greatest value of their experiences lay in two major areas; namely, in increased familiarity with children and in achieving a more realistic approach to school problems. Many students indicated that they enjoyed their contacts with children. Most of these contacts were not teaching ones; but were related to escorting children on trips, helping them in the library, observing them in assembly and audio-visual aids periods.[10]

Experimental Programs in Teacher Education

One of the best known experimental programs in professional education was conducted on the campus of San Francisco State College. In 1958, the college received a five-year grant from the National Institute of Mental Health to study ways of promoting mental health through teacher education. The experimental program was launched in September, 1959. Some of the interesting features of the program were as follows:[11]

Two three-man instructional teams--one elementary and one secondary--each balanced in skills and backgrounds, were assigned students who were taking their professional education courses. These teams remained with the same students during this three or four semester period maintaining close contact and continuity to aid the students in both their personal and professional growth.

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[10] Ibid, p. 30.

[11] Wilhelm, op. cit., pp. 209-215.

Two corresponding groups of students, 55 in each group, were also organized to take courses in the traditional method. They spent approximately half of their time in the professional program.

Special arrangements were made with several schools in the district to provide the necessary flexible laboratory experiences. The arrangements provided for diversity to the extent that individual schedules could be planned.

The usual sequence of professional courses has been suspended for the participants of this project. The same subject matter is covered, but with a different mode of approach. There is no advance commitment to content. The instructional team is permitted to use its professional judgment as to the scope and sequence of the content. These arrangements do not constitute the program, but they serve as the point for departure.

The San Francisco State College Teacher Education Project has had as a major premise the conviction that direct experiences with children and youth are of paramount importance; therefore, the traditional plan of theory first and experience at the end has been rejected. The plan has at its core a deep dedication to the value of a dynamic interrelationship as a foundation for educational growth and understanding.

John F. Ohles,[12] Assistant Professor of Education, State University of New York, Fredonia, New York, cites a similar experiment which was conducted in Denmark at Skive Teachers College in 1954. The students in teacher education were provided with three-week periods of continuous supervised practice in each of the four college years. The first of these three-week periods was taken in the latter part of the first year of instruction, and two such periods were taken during each of the last three years.

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[12] John F. Ohles, "A Danish Experiment in Practice Teaching," The Journal of Teacher Education, 11:40, March, 1960.

To compensate for the loss of time in other courses during the practice periods, the number of hours scheduled in other courses was proportionately increased. Courses in education were designed to prepare students for their practice teaching periods, and special assignments were given during the periods. Particular emphasis was placed on exercises in observation of individuals, analysis of classrooms, surveys of instructional materials, and reports on cumulative records.

The comment on the four-year test showed a definite preference for the experimental program by students, critic teachers, and the faculty alike. One of the positive factors was that the varied situations served to prepare better the prospective teachers for the task ahead. The belief had been expressed that many teachers failed because of a "fear of children", and the feeling and experience of the experiment led those conducting the study to believe that this fear had been minimized through these various exposures to the classroom.

The University of Mississippi has acknowledged the gap existing between theory and the actual application of theory in teacher education.[13] In order to combat this, a changed program has been implemented. This attempt is based on the enlivening of early professional courses with numerous first-hand working relations and communications with children and young people by sending students to their hometown schools for observation, information, and participation and by developing a number of off-campus student teaching laboratory centers where the professional neophytes experience a cross section of school and community life.

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[13] A. W. Scrivner, "Professional Laboratory Experiences," The Journal of Teacher Education, 12:48-53, March, 1961.

In the past, the program consisted of mass exposure to theoretical material and then later the student was sent to "practice teach." Now the students are required, at the sophomore level and while taking the course designed to provide an understanding of school and community, to visit and report on the schools and communities surrounding their homes. The purpose of this is understanding the various relationships of a community and the school.

At the junior level, when the students are enrolled in the course designed to study adolescents, they are required to conduct ten interviews in the campus laboratory school. Also, in conjunction with this, they are required to administer two standardized achievement tests and one intelligence test and to observe three classes to determine classroom climate.

Finally, at the senior level the students are required at the first of the semester to complete a two weeks' program of observation and participation in a school of the student's choice. Then, the final semester of each prospective teacher's senior year is reserved for the student teaching program. This student teaching program consists of a fifteen-hour block with five weeks of pre-student teaching activity, nine weeks off-campus student teaching, and three weeks of study and evaluation. For this block, the student receives nine hours in methods and related classroom experiences and six hours in student teaching.

IV. PROCEDURES

A. Definition of Terms

In order to clarify certain terms which have appeared repeatedly in the study, the following definitions have been defined:

Laboratory experiences: Those experiences which are acquired through observation of instructional situations, either by direct contact or by closed-circuit television, and those experiences which are acquired by participation in instructional situations both in a pre-student teaching situation in the junior level and in the student teaching experience of the senior year.

Observation: Viewing instructional situations directly or via closed-circuit television for the express purpose of developing insights and understandings into the nature of the learner, the learning process and the general and specific roles of the teacher.

Participation: The acquisition of initial teaching experiences through participation in instructional situations which are guided by supervising teachers. Participation is the primary technique used in Phase III of the experimental program.

Selected readings: Readings chosen from broad areas of education which are designed to impart information and to develop understandings which are not readily acquired through observation, participation, and similar laboratory experiences. Selected readings would be the primary technique used in helping the student acquire an understanding of the history of education. Readings would assume major importance in presenting the philosophy and sociology of education and would be a valuable supplement to such areas as psychology and methodology.

Seminars: Periodic meetings with small groups of students for the purpose of providing opportunities for discussion of content of the selected readings and laboratory experiences between students and between students and knowledgeable professors.

B. The Experimental Program, General Design

Basic to the investigation of the questions posed in the study was the development of an experimental program of professional education for prospective secondary teachers. The criteria for the development of the experimental program were as follows: (1) that the content of professional education in the foundational areas of philosophy, psychology, sociology, and anthropology would be integrated into either a problem or a thematic approach; (2) that laboratory experiences of observation and participation would keep pace with the study of content; and (3) that new techniques and media which represented the best that was known about teaching and learning would be used in the presentation of both the content and the laboratory experiences.

The experimental program which was developed replaced the formal courses of professional education with three "phases" of professional preparation based upon an unstructured study of content in conjunction with carefully planned laboratory experiences which were acquired through direct contact with students. A detailed description of the content and the procedures used in the experimental program has been presented in Chapter Two of this report. The three phases of progessional preparation in the experimental program have been presented schematically in Figure 1.

	Phase I	Phase II	Phase III
	Junior Year First Semester	Junior Year Second Semester	Senior Year First or Second Semester
Primary Technique	Observation	Participation	Student Teaching
With Major Emphasis on	Readings and Seminars (History, Philosophy, Sociology, and Psychology)	Readings and Seminars (Methodology, Psychology, and Guidance)	Readings and Seminars (Methodology and Professional Ethics)
Using Major Media of	Educational Television	Laboratory School	Public Schools
Time and Credit Allotment	Seven Classroom Hours Seven Credit Hours	Seven Classroom Hours Seven Credit Hours	Nine Weeks, Full-time Six Credit Hours

Figure 1. A Proposal for a Laboratory Approach to Teacher Education in Three Phases.

As indicated in Figure 1, the experimental program for professional education was conducted in three phases. Phase I of the program occurred during the first semester of the junior year and was the student's first contact with professional education. This phase was based on the assumption that understandings and insights into the nature of the learner and the learning process were best acquired initially by observation. Observation in the initial phase was accomplished through the use of a system of closed-circuit television which originated in the campus laboratory school and was viewed by the students of teacher education in a large lecture auditorium. The viewing room was in the charge of an experienced professor of education who had had extensive experience in public school instruction. All cameras in the originating room were remotely controlled in the viewing room by the instructor who was able to direct the student's attention to the many facets of competent instruction and to the characteristics of the learner. Educational television was chosen for this phase of the instruction because it could provide for large groups a commonality of experience not available in direct classroom observation.

It was recognized that not all of the knowledges, understandings and insights which should be acquired in an introductory course to professional education could be accomplished through observation. Consequently, a carefully selected list of readings in the broad areas of history, philosophy, and psychology of education was provided the students. These readings were made outside of a formally organized class. Two weekly seminars of one hour each were provided to permit the student opportunities to discuss the content and implications of the readings with the professor of education and competent resource specialists.

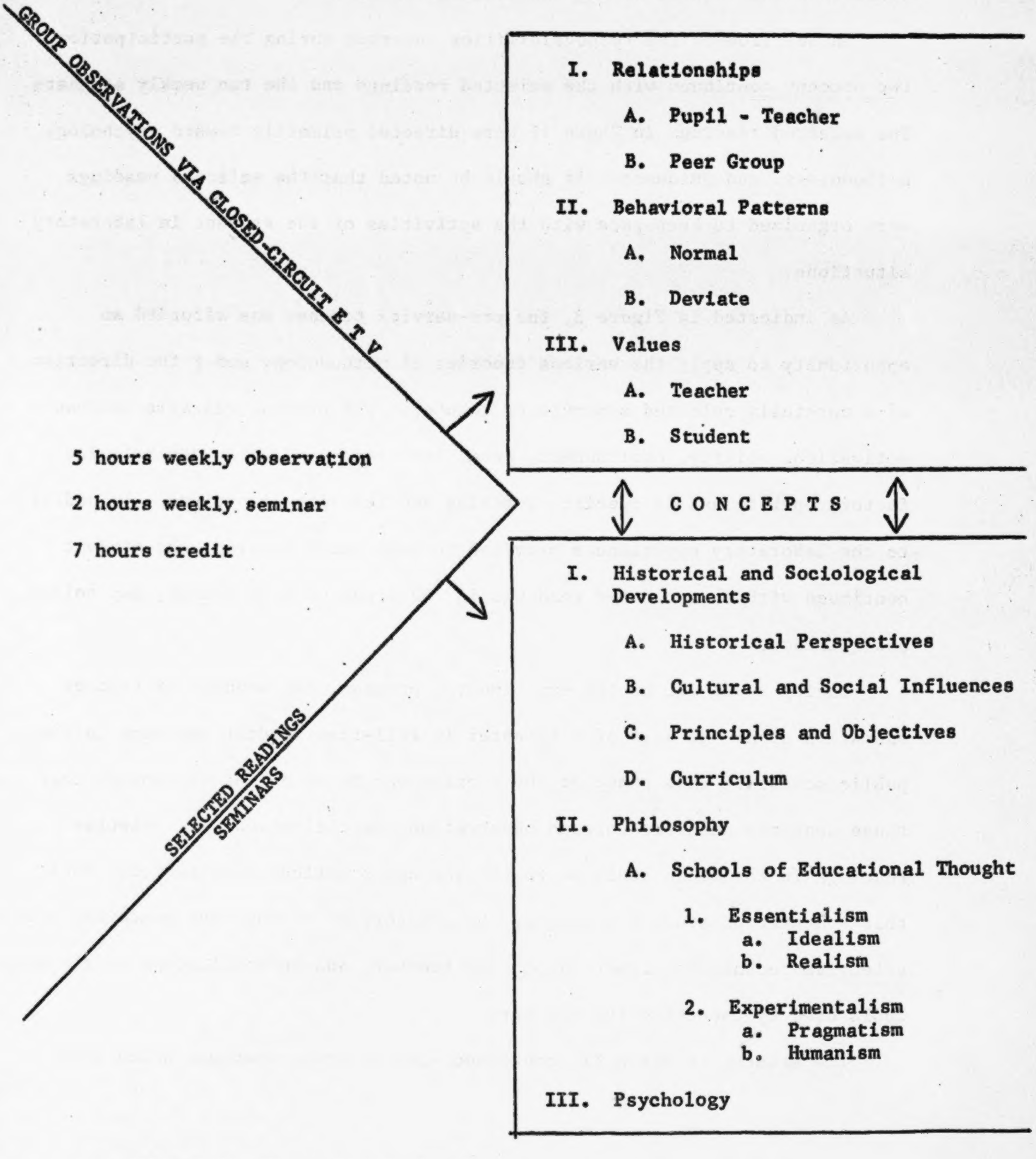
Phase I of the experimental program required a minimum of seven hours weekly in observation and seminars. The selected readings required between three and five hours each week. All readings were selected to provide knowledges and understandings which could not be acquired by observation and to supplement knowledges and understandings acquired through observation.

A schematization of Phase I has been presented in Figure 2.

Those concepts which were believed to be best acquired through observation have been indicated in Figure 2. These were concepts of relationship such as might exist between the student and the teacher or between students, concepts of the factors which determine whether behavior is normal or deviate, and concepts of values possessed by both the student and the teacher. The concepts which could probably best be developed through other techniques, in this case through selected readings in conjunction with seminars, were those which required a high level of verbalization, i.e., essentialistic versus experimentalistic philosophic orientation.

Phase II of the experimental program occurred during the second semester of the student's junior year. This phase was based on the assumption that after the pre-service teacher had developed certain desirable concepts about learners and the learning process through observation, those concepts could be further refined used as foundations for more complex ones, and techniques could be developed which would be consistent with the student's conceptual orientation through actual participation in instructional situations.

For the semester's duration of Phase II, the pre-service teacher spent one hour daily in a high school class of his major area of preparation. The pre-service teacher was expected to assist the supervising teacher in the


GROUP OBSERVATIONS VIA CLOSED-CIRCUIT E T V
5 hours weekly observation
2 hours weekly seminar
7 hours credit
SELECTED READINGS
SEMINARS
C O N C E P T S

I. Relationships
  A. Pupil - Teacher
  B. Peer Group
II. Behavioral Patterns
  A. Normal
  B. Deviate
III. Values
  A. Teacher
  B. Student

I. Historical and Sociological Developments
  A. Historical Perspectives
  B. Cultural and Social Influences
  C. Principles and Objectives
  D. Curriculum
II. Philosophy
  A. Schools of Educational Thought
    1. Essentialism
      a. Idealism
      b. Realism
    2. Experimentalism
      a. Pragmatism
      b. Humanism
III. Psychology

Figure.2. Phase I - Junior Year

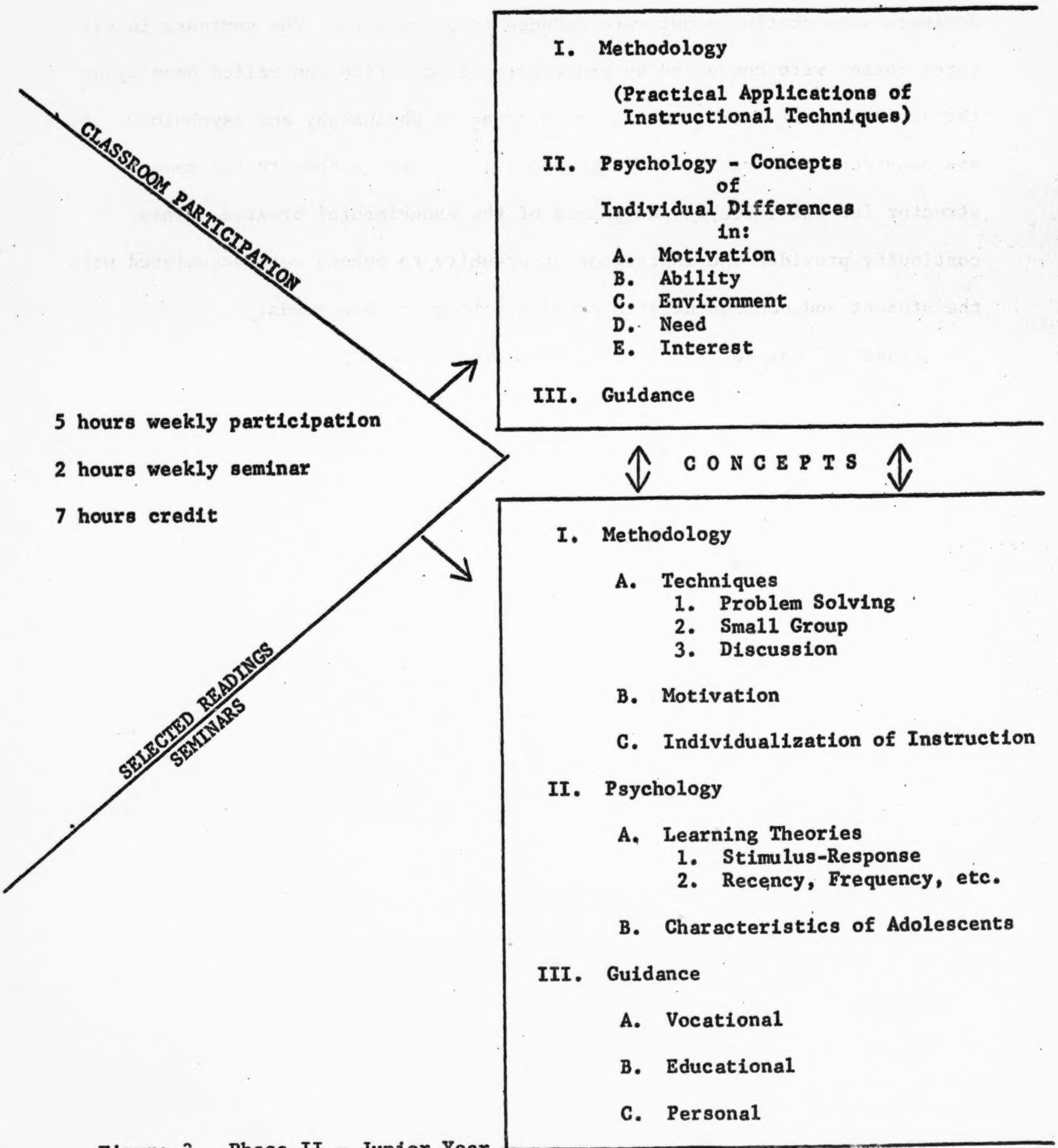
planning of the instructional situations, the preparation of instructional materials, the direction of small groups, and in the instruction of the class upon the request of the supervising teacher.

In addition to the responsibilities incurred during the participation, the student continued with the selected readings and the two weekly seminars. The selected readings in Phase II were directed primarily toward psychology, methodology, and guidance. It should be noted that the selected readings were organized to keep pace with the activities of the student in laboratory situations.

As indicated in Figure 3, the pre-service teacher was afforded an opportunity to apply the various theories of methodology under the direction of a carefully selected supervising teacher. The student was able to observe motivation, ability, environment, need, interests, and other psychological factors operational in specific teaching and learning situations. In addition to the laboratory experiences provided through participation, the student continued with the selected readings in the areas of methodology, psychology, and guidance.

During Phase III of the experimental program, the student of teacher education spent one-half of a semester in full-time student teaching in the public schools. This phase of the program was based on the assumption that those concepts acquired through observation, participation, and selected readings in the field could be tested through practical application. During this semester of student teaching, the pre-service teacher was concerned with effective techniques, functions of the teacher, and an application of the many tools used by the effective teacher.

The student in Phase III continued with selected readings which were


CLASSROOM PARTICIPATION
SELECTED READINGS SEMINARS
CONCEPTS

5 hours weekly participation

2 hours weekly seminar

7 hours credit

I. Methodology
  (Practical Applications of Instructional Techniques)

II. Psychology - Concepts of Individual Differences in:
  A. Motivation
  B. Ability
  C. Environment
  D. Need
  E. Interest

III. Guidance

I. Methodology

  A. Techniques
    1. Problem Solving
    2. Small Group
    3. Discussion

  B. Motivation

  C. Individualization of Instruction

II. Psychology

  A. Learning Theories
    1. Stimulus-Response
    2. Recency, Frequency, etc.

  B. Characteristics of Adolescents

III. Guidance

  A. Vocational

  B. Educational

  C. Personal

Figure 3. Phase II - Junior Year

designed to supplement the laboratory experiences and to provide vicarious experiences which were not readily available through observation and participation. In addition to methodology, the student read extensively in the broad area of the professional relations and the responsibilities of the teacher. Seminars were continued but were reduced to one weekly. The seminars in all three phases were conducted by professors of education who relied heavily on the assistance of specialists in such areas as philosophy and psychology. It was considered desirable to assign the pre-service teacher to the same instructor for all three of the phases of the experimental program. This continuity provided the instructor opportunity to become well acquainted with the student and consequently to provide better for his needs.

Phase III has been schematically presented in Figure 4.

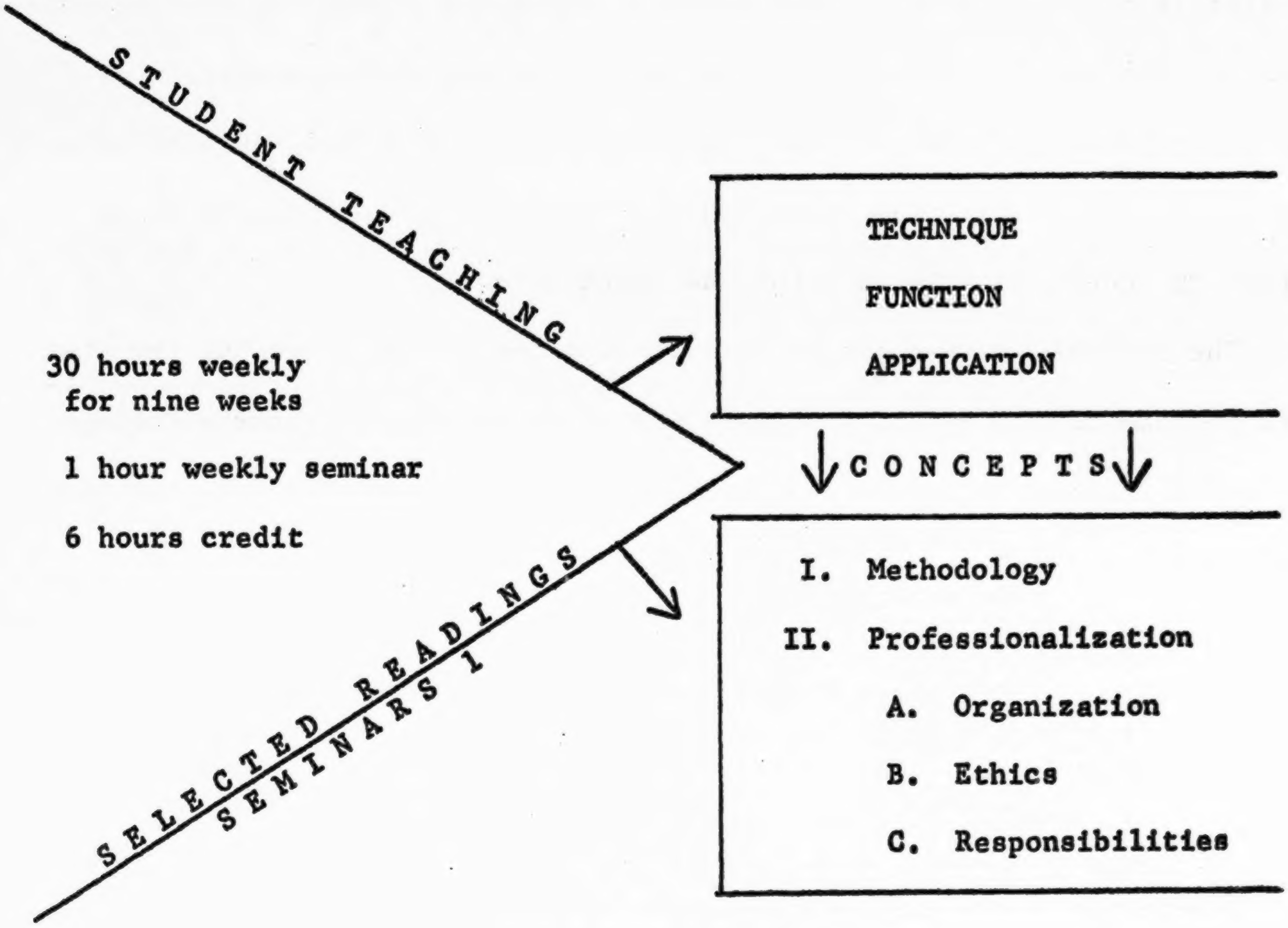

STUDENT TEACHING
30 hours weekly
for nine weeks
1 hour weekly seminar
6 hours credit
SELECTED READINGS
SEMINARS 1
TECHNIQUE
FUNCTION
APPLICATION
CONCEPTS
I. Methodology
II. Professionalization
A. Organization
B. Ethics
C. Responsibilities

Figure 4. Phase III.

C. THE CONTROL PROGRAM

The experimental program described was tested against a rather conventional control program. The control program resembled the standard program of Kansas State Teachers College and was comparable to most programs of professional education in institutions which are engaged in the preparation of teachers. It was altered to conform to the time-equivalents of the experimental program and to provide certain innovations, such as cuing the participants that they were a part of an experimental program in an effort to reduce or eliminate the Hawthorne Effect.

The control program can be better understood after reviewing the standard program of professional preparation at Kansas State Teachers College. The standard program is followed by all students preparing in the secondary field and has the following course requirements:

Junior Year

Education	333	Principles of Secondary Education	3 hours
Education	334	Teaching in the Secondary School	2 hours
Psychology	460	Educational Psychology	3 hours

Senior Year

Education	490	Student Teaching, Secondary	6 hours
Education	431	Professional Relations of the Teacher	3 hours
one of:			
Education	521	Principles of Guidance	
Psychology	443	Tests and Measurements	3 hours
			20 hours

The control program differed from the standard program primarily in the placement of courses:

First Semester
Junior Year

Education	333	Principles of Secondary Education	3 hours
Education	334	Teaching in the Secondary School	2 hours
Psychology	460	Educational Psychology	3 hours

Second Semester
Junior Year

Education	431	Professional Relations of the Teacher	3 hours
one of:			
Education	521	Principles of Guidance	
Psychology	443	Tests and Measurements	3 hours

First Semester
Senior Year

Education	490	Student Teaching, Secondary	6 hours
(in a nine-week block identical to that of the Experimental Group)			20 hours

The major differences between the standard program and the control program were the following:

(a) The control program placed all of the courses ordinarily taken in the junior year in the first semester of the junior year.

(b) With the exception of student teaching, all courses ordinarily taken in the senior year were placed in the second semester of the junior year in the control program.

(c) The hours of instruction in both semesters of the junior year for the control program equaled those of the experimental group.

(d) Students of the control program were informed that they would be participating in a study to determine the effectiveness of the changes listed above.

The experimental program has been contrasted summarily with the control program in Figure 5.

	Experimental Group	Control Group
First Semester Junior Year	Phase I. Students spend five hours weekly in directed observation via closed-circuit T.V. and two hours weekly in seminars. Seven hours credit.	Students enroll in three courses of professional education. Eight hours credit.
Second Semester Junior Year	Phase II. Students spend five hours weekly in classroom participation and two hours in seminars. Seven hours credit.	Students enroll in two courses of professional education. Six hours credit.
First Semester Senior Year	Phase III. Students spend nine weeks in full-time student teaching in public schools with one hour weekly seminar. Six hours credit.	Students spend nine weeks in full-time student teaching in public schools plus seminars. Six hours credit.

Figure 5. A Summary Comparison of the Experimental and Control Programs.

D. POPULATION

The students for both the experimental and the control programs were selected during the second semester of their sophomore year. The initial list was compiled from those students whose college records indicated (1) that they would enter the teacher education curriculum the following September, and (2) that they had taken no professional education courses previously, either at Kansas State Teachers College or at other colleges. Transcripts of these students were examined to determine that no student had a grade point average below 2.3 on a 4.0 scale, the minimum grade point average with which students are allowed to complete the teacher education program at Kansas State Teachers College.

Approximately two hundred students met the criteria and letters were sent asking them to come to the investigator's office for an interview. In the interview, the student was briefed on the nature of the research project and asked to indicate his willingness to serve in either the control or the experimental group as determined by a random selection process. One hundred and forty-one students met the criteria for selection. The names of these students were written on slips of paper and drawn randomly from a basket. The first 71 names drawn became the experimental group and the remaining 70 were assigned to the control group.

During the approximately eighteen months of the project, 26 students of the original 141 either withdrew from college or asked to be withdrawn from the project for a variety of reasons including pregnancy, transfer to other institutions, change of schedules, and change of educational objectives. Four students were withdrawn from the project by the director because of their failure to take the initial administration of the National Teachers Examination.

This was necessary because the test was administered on a National Testing Date and no other opportunity was available to collect the initial data. One hundred and fifteen students for whom complete data were collected remained at the end of the project. Of these, 62 were in the experimental group and 53 were in the control group. Unless otherwise indicated, all data reported have been based on the 115 students.

E. DATA AND INSTRUMENTATION

The burden of the investigation was to determine the extent of behavioral change in those students subjected to an experimental program of teacher education in comparison to students who followed a conventional teacher education program. With the exception of the National Teachers Examination, all data collected were designed to reveal behavioral characteristics rather than cognitive processes. The data were derived from (1) the Classroom Observation Record, (2) a system of interaction analysis, (3) the National Teachers Examination, and (4) the student teaching grades given by supervising teachers in the public schools. Both the instruments and the procedures used to collect the data have been described in the following paragraphs.

(1) The Classroom Observation Record. The Classroom Observation Record was developed by Dr. David G. Ryans from the Teacher Characteristics Study sponsored by the American Council on Education.[14] The Classroom Observation Record has attempted to assess four dimensions of pupil behavior and eighteen dimensions of teacher behavior on a seven-point, or seven dimension scale; examples of the specific behaviors contributing to the descriptions of the twenty-two dimensions, have been presented in the list that follows Figure 6.

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[14] David G. Ryans, Characteristics of Teachers: Their Description, Comparison, and Appraisal. Washington, D.C.: American Council on Education, 1960. p 450.

Classroom Observation Record

9-22-51

Teacher Characteristics Study

Teacher____________________No._____Sex_____Class or Subject____________________Date________

City____________________School__________________Time_______Observer________________

PUPIL BEHAVIOR

REMARKS:

1.	Apathetic	1	2	3	4	5	6	7	N	Alert
2.	Obstructive	1	2	3	4	5	6	7	N	Responsible
3.	Uncertain	1	2	3	4	5	6	7	N	Confident
4.	Dependent	1	2	3	4	5	6	7	N	Initiating

TEACHER BEHAVIOR

5.	Partial	1	2	3	4	5	6	7	N	Fair
6.	Autocratic	1	2	3	4	5	6	7	N	Democratic
7.	Aloof	1	2	3	4	5	6	7	N	Responsive
8.	Restricted	1	2	3	4	5	6	7	N	Understanding
9.	Harsh	1	2	3	4	5	6	7	N	Kindly
10.	Dull	1	2	3	4	5	6	7	N	Stimulating
11.	Stereotyped	1	2	3	4	5	6	7	N	Original
12.	Apathetic	1	2	3	4	5	6	7	N	Alert
13.	Unimpressive	1	2	3	4	5	6	7	N	Attractive
14.	Evading	1	2	3	4	5	6	7	N	Responsible
15.	Erratic	1	2	3	4	5	6	7	N	Steady
16.	Excitable	1	2	3	4	5	6	7	N	Poised
17.	Uncertain	1	2	3	4	5	6	7	N	Confident
18.	Disorganized	1	2	3	4	5	6	7	N	Systematic
19.	Inflexible	1	2	3	4	5	6	7	N	Adaptable
20.	Pessimistic	1	2	3	4	5	6	7	N	Optimistic
21.	Immature	1	2	3	4	5	6	7	N	Integrated
22.	Narrow	1	2	3	4	5	6	7	N	Broad

Figure 6.

Figure 6, Continued

GLOSSARY

(To be used with classroom observation record.)

Pupil Behaviors

1. Apathetic-Alert Pupil Behavior

Apathetic

1. Listless.
2. Bored-acting.
3. Enter into activities half-heartedly.
4. Restless.
5. Attention wanders.
6. Slow in getting under way.

Alert

1. Appear anxious to recite and participate.
2. Watch teacher attentively.
3. Work concentratedly.
4. Seem to respond eargerly.
5. Prompt and ready to take part in activities when they begin.

2. Obstructive-Responsible Pupil Behavior

Obstructive

1. Rude to one another and/or to teacher.
2. Interrupting; demanding attention; disturbing.
3. Obstinate; sullen.
4. Refusal to participate.
5. Quarrelsome; irritable.
6. Engaged in name-calling and/or tattling.
7. Unprepared

Responsible

1. Courteous, co-operative, friendly with each other and with teacher.
2. Complete assignments without complaining or unhappiness.
3. Controlled voices.
4. Received help and criticism attentively.
5. Asked for help when needed.
6. Orderly without specific directions from teacher.
7. Prepared.

3. Uncertain-Confident Pupil Behavior

Uncertain

1. Seem afraid to try; unsure.
2. Hesitant; restrained.
3. Appear embarrassed.
4. Frequent display of nervous habits, nail-biting, etc.
5. Appear shy and timid.
6. Hesitant and/or stammering speech.

Confident

1. Seem anxious to try new problems or activities.
2. Undisturbed by mistakes.
3. Volunteer to recite.
4. Enter freely into activities.
5. Appear relaxed.
6. Speak with assurance.

4. Dependent-Initiating Pupil Behavior

Dependent

1. Rely on teacher for explicit directions.
2. Show little ability to work things out for selves.
3. Unable to proceed when initiative called for.
4. Appear reluctant to take lead or to accept responsibility.

Initiating

1. Volunteer ideas and suggestions.
2. Showed resourcefulness.
3. Take lead willingly.
4. Assume responsibilities without evasion.

Teacher Behaviors

5. Partial-Fair Teacher Behavior

Partial

1. Repeatedly slighted a pupil.
2. Corrected or criticized certain pupils repeatedly.
3. Repeatedly gave a pupil special advantages.
4. Gave most attention to one or a few pupils.
5. Showed prejudice (favorable or unfavorable) towards some social, racial, or religious groups.
6. Expressed suspicion of motives of a pupil.

Fair

1. Treated all pupils approximately equally.
2. In case of controversy pupil allowed to explain his side.
3. Distributed attention to many pupils.
4. Rotated leadership impartially.
5. Based criticism or praise on factual evidence, not hearsay.

6. Autocratic-Democratic Teacher Behavior

Autocratic

1. Tells pupils each step to take.
2. Intolerant of pupils' ideas.
3. Mandatory in giving directions; orders to be obeyed at once.
4. Interrupted pupils although their discussion was relevant.
5. Always directed rather than participated.

Democratic

1. Guided pupils without being mandatory.
2. Exchanged ideas with pupils.
3. Encouraged (asked for) pupil opinion.
4. Encouraged pupils to make own decisions.
5. Entered into activities without domination.

7. Aloof-Responsive Teacher Behavior

Aloof

1. Stiff and formal in relations with pupils.
2. Apart; removed from class activity.
3. Condescending to pupils.
4. Routine and subject matter only concern; pupils as persons ignored.
5. Referred to pupil as "this child" or "that child."

Responsive

1. Approachable to all pupils.
2. Participates in class activity.
3. Responded to reasonable requests and/or questions.
4. Speaks to pupils as equals.
5. Commends effort.
6. Gives encouragement.
7. Recognized individual differences.

8. Restricted-Understanding Teacher Behavior

Restricted

1. Recognized only academic accomplishments of pupils; no concern for personal problems.
2. Completely unsympathetic with a pupil's failure at a task.
3. Called attention only to very good or very poor work.
4. Was impatient with a pupil.

Understanding

1. Showed awareness of a pupil's personal emotional problems and needs.
2. Was tolerant of error on part of pupil.
3. Patient with a pupil beyond ordinary limits of patience.
4. Showed what appeared to be sincere sympathy with a pupils' viewpoint.

9. Harsh-Kindly Teacher Behavior

Harsh

1. Hypercritical; fault-finding.
2. Cross; curt.
3. Depreciated pupil's efforts; was sarcastic.
4. Scolds a great deal.
5. Lost temper.
6. Used threats.
7. Permitted pupils to laugh at mistakes of others.

Kindly

1. Goes out of way to be pleasant and/or to help pupils; friendly.
2. Give a pupil a deserved compliment.
3. Found good things in pupils to call attention to.
4. Seemed to show sincere concern for a pupil's personal problem.
5. Showed affection without being demonstrative.
6. Disengaged self from a pupil without bluntness.

10. Dull-Stimulating Teacher Behavior

Dull

1. Uninteresting, monotonous explanations.
2. Assignments provide little or no motivation.
3. Fails to provide challenge.
4. Lack of animation.
5. Failed to capitalize on pupil interests.
6. Pedantic, boring.
7. Lacks enthusiasm; bored acting.

Stimulating

1. Highly interesting presentation; gets and holds attention without being flashy.
2. Clever and witty, though not smart-alecky or wise-cracking.
3. Enthusiastic; animated.
4. Assignments challenging.
5. Took advantage of pupil interests.
6. Brought lesson successfully to a climax.
7. Seemed to provoke thinking.

11. Stereotyped-Original Teacher Behavior

Stereotyped

1. Used routine procedures without variation.
2. Would not depart from procedure to take advantage of a relevant question or situation.
3. Presentation seemed unimaginative.
4. Not resourceful in answering questions or providing explanations.

Original

1. Used what seemed to be original and relatively unique devices to aid instruction.
2. Tried new materials or methods.
3. Seemed imaginative and able to develop presentation around a question or situation.
4. Resourceful in answering question; had many pertinent illustrations available.

12. Apathetic-Alert Teacher Behavior

Apathetic

1. Seemed listless; languid; lacked enthusiasm.
2. Seemed bored by pupils.
3. Passive in response to pupils.
4. Seemed preoccupied.
5. Attention seemed to wander.
6. Sat in chair most of time; took no active part in class activities.

Alert

1. Appeared buoyant; wide-awake; enthusiastic about activity of the moment.
2. Kept constructively busy.
3. Gave attention to, and seemed interested in, what was going on in class.
4. Prompt to "pick up" class when pupils' attention showed signs of lagging.

13. Unimpressive-Attractive Teacher Behavior

Unimpressive

1. Untidy or sloppily dressed.
2. Inappropriately dressed.
3. Drab, colorless.
4. Posture and bearing unattractive.
5. Possessed distracting personal habits.
6. Mumbled; inaudible speech; limited expression; disagreeable voice tone; poor inflection.

Attractive

1. Clean and neat.
2. Well-groomed; dress showed good taste.
3. Posture and bearing attractive.
4. Free from distracting personal habits.
5. Plainly audible speech; good expression; agreeable voice tone; good inflection.

14. Evading-Responsible Teacher Behavior

Evading

1. Avoided responsibility; disinclined to make decisions.
2. "Passed the buck" to class, to other teachers, etc.
3. Left learning to pupil, failing to give adequate help.
4. Let a difficult situation get out of control.
5. Assignments and directions indefinite.
6. No insistance on either individual or group standards.
7. Inattentive with pupils.
8. Cursory.

Responsible

1. Assumed responsibility; makes decisions as required.
2. Conscientious.
3. Punctual.
4. Painstaking; careful.
5. Suggested aids to learning.
6. Controlled a difficult situation.
7. Gave definite directions.
8. Called attention to standards of quality.
9. Attentive to class.
10. Thorough.

15. Erratic-Steady Teacher Behavior

Erratic

1. Impulsive; uncontrolled; temperamental; unsteady.
2. Course of action easily swayed by circumstances of the moment.
3. Inconsistent.

Steady

1. Calm; controlled.
2. Maintained progress toward objective.
3. Stable, consistent, predictable.

16. Excitable-Poised Teacher Behavior

Excitable

1. Easily disturbed and upset; flustered by classroom situation.
2. Hurried in class activities; spoke rapidly using many words and gestures.
3. Was "jumpy"; nervous.

Poised

1. Seemed at ease at all times.
2. Unruffled by situation that developed in classroom; dignified without being stiff or formal.
3. Unhurried in class activities; spoke quietly and slowly.
4. Successfully diverted attention from a stress situation in classroom.

17. Uncertain-Confident Teacher Behavior

Uncertain

1. Seemed unsure of self; faltering, hesitant.
2. Appeared timid and shy.
3. Appeared artificial.
4. Disturbed and embarrassed by mistakes and/or criticism.

Confident

1. Seemed sure of self; self-confident in relations with pupils.
2. Undisturbed and unembarrassed by mistakes and/or criticism.

18. Disorganized-Systematic Teacher Behavior

Disorganized

1. No plan for class work.
2. Unprepared.
3. Objectives not apparent; undecided as to next step.
4. Wasted time.
5. Explanations not to the point.
6. Easily distracted from matter at hand.

Systematic

1. Evidence of a planned though flexible procedure.
2. Well prepared.
3. Careful in planning with pupils.
4. Systematic about procedure of class.
5. Had anticipated needs.
6. Provided reasonable explanations.
7. Held discussion together; objectives apparent.

19. Inflexible-Adaptable Teacher Behavior

Inflexible

1. Rigid in conforming to routine.
2. Made no attempt to adapt materials to individual pupils.
3. Appeared incapable of modifying explanation or activities to meet particular classroom situations.
4. Impatient with interruptions and digressions.

Adaptable

1. Flexible in adapting explanations.
2. Individualized materials for pupils as required; adapted activities to pupils.
3. Took advantage of pupils' questions to further clarify ideas.
4. Met an unusual classroom situation competently.

20. Pessimistic-Optimistic Teacher Behavior

Pessimistic

1. Depressed; unhappy.
2. Skeptical.
3. Called attention to potential "bad."
4. Expressed hopelessness of "education today," the school system, or fellow educators.
5. Noted mistakes; ignored good points.
6. Frowned a great deal; had unpleasant facial expression.

Optimistic

1. Cheerful; good-natured.
2. Genial.
3. Joked with pupils on occasion.
4. Emphasized potential "good."
5. Looked on bright side; spoke optimistically of the future.
6. Called attention to good points; emphasized the positive.

21. Immature-Integrated Teacher Behavior

Immature

1. Appeared naive in approach to classroom situations.
2. Self-pitying; complaining; demanding.
3. Boastful; conceited.

Integrated

1. Maintained class as center of activity; kept self out of spotlight; referred to class's activities, not own.
2. Emotionally well controlled.

22. Narrow-Broad Teacher Behavior

Narrow

1. Presentation strongly suggested limited background in subject or material; lack of scholarship.
2. Did not depart from text.
3. Failed to enrich discussions with illustrations from related areas.
4. Showed little evidence of breadth of cultural background in such areas as science, arts, literature, and history.
5. Answers to pupils' questions incomplete or inaccurate.
6. Noncritical approach to subject.

Broad

1. Presentation suggested good background in subject; good scholarship suggested.
2. Drew examples and explanations from various sources and related fields.
3. Showed evidence of broad cultural background in science, art, literature, history, etc.
4. Gave satisfying, complete, and accurate answers to questions.
5. Was constructively critical in approach to subject matter.

Three Classroom Observation Records were completed for each student of both the experimental and control groups during his student teaching. The Records were completed at approximately three-week intervals by the independent observers . The student's assignment to either the experimental or the control group was concealed from the observer to prevent observer bias. The observers were instructed to enter the classroom when the student was instructing, to observe the entire class period, to hold minimum conversation with either the student teacher or the supervising teacher, and to complete the Classroom Observation Record immediately upon leaving the classroom.

a. Selection of the Independent Observers. One of the critical aspects of the investigation was the selection of the Independent Observers. The investigators believed that the observers should be independent and associated with neither the project nor the college. Since the Classroom Observation Record required some value judgments on the part of the observers, it was believed desirable that the observers should hold the highest degree in their field of specialization and also should be serving in a position which required demonstrated competence in instruction. The names and positions of the six observers chosen are as follows:

Dr. Ralph Chalendar, Principal, Milburn Junior High School, Shawnee Mission, Kansas

Dr. Wayne Craven, Principal, Hillcrest Junior High School, Shawnee Mission, Kansas

Dr. Ruth Stout, Associate Secretary of the Kansas State Teachers Association, Topeka, Kansas, and past president of NEA

Dr. Dale Jantze, Head, Department of Education, Friends University, Wichita, Kansas

Dr. Roger Pankratz, Associate Professor of Science Education, Tabor College, Hillsboro, Kansas

Mr. Henry Norris, Assistant Superintendent, Emporia Public Schools, Emporia, Kansas

b. Training of the Observers. In August and early September prior to the beginning of the student teaching phase of the project, the observers were brought to the campus for three training sessions. The initial training session was of two days duration during which the observers were acquainted with the Classroom Observation Record and the Glossary. The observers were instructed in the prescribed use of the Record and given several opportunities to practice on video tapes of teaching situations after which the observers compared their observations. The observers were instructed never to use the record without having the Glossary before them and to limit their observations to those descriptions contained in the Glossary.

At the conclusion of the three training sessions, the observers were shown four video tapes which they had not seen before and asked to complete a Classroom Observation Record for each. Each video-tape had a duration of twenty to fifty minutes. Correlations were computed between the observers on the four observations and the results have been presented in Table 1.

A high degree of correlation was found between the observers on the four video-tapes. The highest correlation was between observers 1 and 5 (.94), and the lowest correlation was between observers 3 and 6 (.79). The average correlation between all observers was .90.

Table 1. The average coefficients of correlation between the six observers over the 22 items of the classroom observation record[a]

Observer	1	2	3	4	5	6
1	1.00	.93	.86	.93	.94	.91
2		1.00	.88	.92	.92	.93
3			1.00	.89	.82	.79
4				1.00	.90	.90
5					1.00	.89
6						1.00

[a] Average Correlations were computed through Fisher's z

(2) The System of Interaction Analysis. A sixteen category observational system for the analysis of classroom instruction developed by John B. Hough was used in the study. A summary of the sixteen categories has been shown in Figure 7.[15]

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[15] The sixteen category system shown in Figure 7 was developed by John B. Hough and is a modification of Flanders' ten category system of Interaction Analysis. This sixteen category system is described in "An Observational System for Analysis of Classroom Instruction," a paper read at the American Educational Research Association's National Convention in 1965.

Category Number		Description of Verbal Behavior
1	TEACHER TALK	ACCEPTS FEELING: accepts and clarifies the feeling and tone of students in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are also included.
2		PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension not at the expense of another individual, nodding head or saying "uh-huh" or "go on" are included.
3		ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building on, developing and accepting ideas of students.
4		ASKS QUESTIONS: asking a question about content or procedure with the intent that the student should answer.
5		ANSWERS STUDENT QUESTIONS: direct answers to questions regarding content or procedure asked by students.
6		LECTURES: giving facts or opinions about content or procedures; expressing his own ideas; asking rehetorical questions.
7		CORRECTIVE FEEDBACK: telling a student that his answer is wrong when the incorrectness of the answer can be established by other than opinion, i.e., empirical validation, definition or custom.
8		GIVES DIRECTIONS: directions, commands or orders to which a student is expected to comply.
9		CRITICIZES OR JUSTIFIES AUTHORITY: statements intended to change student behavior from a nonacceptable to an acceptable pattern; bawling out someone; stating why the teacher is doing what he is doing so as to achieve or maintain control; rejecting or criticizing a student's opinion or judgment.

Figure 7. Summary of the Sixteen Categories in the Observational System for the Analysis of Classroom Instruction.

10	STUDENT TALK	STUDENT TALK-RESPONSE: talk by students in response to requests or narrow teacher questions. The teacher initiates the contact or solicits student's statement.
11		STUDENT TALK-EMITTED: talk by students in response to broad teacher questions which require judgment or opinion. Student declarative statements emitted but not called for by teacher questions.
12		STUDENT QUESTIONS: questions concerning content or procedure that are directed to the teacher.
13	SILENCE	DIRECTED PRACTICE OR ACTIVITY: non-verbal behavior requested or suggested by the teacher. This category is also used to separate student to student response.
14		SILENCE AND CONTEMPLATION: silence following questions, periods of silence interspersed with teacher talk or student talk and periods of silence intended for the purpose of thinking.
15		DEMONSTRATION: silence during periods when visual materials are being shown or when non-verbal demonstration is being conducted by the teacher.
16	NON-FUNCTIONAL	CONFUSION AND IRRELEVANT BEHAVIOR: periods when the noise level is such that the person speaking cannot be understood or periods of silence that have no relation to the purposes of the classroom.

Figure 7. Continued

The Sixteen Category System of Interaction Analysis was used for a twenty-minute interval in each of three visits made by the independent observers during the student teaching phase. Again the information concerning the student's assignment to either the experimental or the control group was withheld from the observer. The observer's instructions were to enter the classroom when the student was teaching, observe the class for ten minutes, begin the system of interaction analysis precisely at the eleventh minute and continue through the thirtieth minute. At the end of the three observations, a full sixty minutes of interaction analysis had been recorded for each student of both the experimental and the control groups.

(1) Selection of Independent Observers. The same independent observers were used to collect the data from the interaction analysis system who were used for the Classroom Observation Record.

(2) Training of the Independent Observers. The observers were trained in the use of the interaction analysis system in the same training sessions in which they were instructed in the use of the Classroom Observation Record. They were first required to become so familar with the sixteen categories that they could readily categorize any teaching act. The instructions accompanying the Flanders' Interaction Analysis System were used.[16] The instructions required that the observer write the number of the category occurring in the classroom every three seconds or every time the category changed. The observer, writing approximately twenty numbers per minute, recorded these numbers sequentially in a column.

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[16] Flanders, Ned A. "Teacher Influence Pupil Attitudes and Achievement," Final Report; 1960, University of Minnesota; Project 397; United States Department of Health, Education and Welfare; Cooperative Research Programs; Office of Education.

In the initial training sessions, audio-tapes were used in short sequences after which the instructor discussed the categories with the observers and compared their results. Video-tapes were used in later training sessions to simulate more nearly the classroom. After having used video-tapes, the observers went into the classrooms in their own school systems to practice the system until they felt confident in its use. More than 30 hours were spent in training. Finally, the observers were asked to conduct the system of observation on two audio-tapes which they had not used previously as a check on their accuracy. Interobserver reliability coefficients were computed by a formula suggested by Scott.[17] The interobserver reliability for the six observers on the two audio-tapes mentioned above has been presented in Tables 2 and 3. The reliability coefficients of the six observers were well within the range of acceptability. The lowest coefficient on either tape was .73 and the highest was .93.

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[17] Scott, W. A., "Reliability of Content Analysis: The Case of Nominal Coding", The Public Opinion Quarterly, 1955, p 321-325.

Table 2. Reliability coefficients for six observers on a fifteen minute audio-tape.

Observer	1	2	3	4	5	6
1	1.00	.91	.89	.89	.92	.89
2		1.00	.92	.87	.87	.91
3			1.00	.86	.87	.87
4				1.00	.93	.92
5					1.00	.88
6						1.00

Table 3. Reliability coefficients for six observers on a twenty minute audio-tape.

Observer	1	2	3	4	5	6
1	1.00	.88	.87	.87	.76	.77
2		1.00	.85	.78	.73	.77
3			1.00	.85	.77	.78
4				1.00	.82	.81
5					1.00	.83
6						1.00

(3) The National Teachers Examination. The National Teacher Examinations have been prepared and administered since 1950 by the Educational Testing Service of Princeton, New Jersey. Since the question to be examined in this study concerned the achievement of both the experimental and control students in professional content, only the Common Examinations were given. The Common Examinations are designed to provide an appraisal of the prospective teacher's professional and general education. The three Professional Education tests in the Common Examinations are in Psychological Foundations of Education, Societal Foundations of Education, and Teaching Principles and Practices. The Professional tests are designed to assess knowledge of basic professional matters.

The General Education tests of the Common Examinations are in Social Studies, Literature, and Fine Arts; Science and Mathematics; and Written English Expression. The General Education tests are directed toward measuring the general education background of college graduates. The scores for the Common Examinations are reported as scaled scores having a mean of sixty based on the standardizing population of all nationwide candidates who took the battery of tests when the program was inaugurated.

The Common Examinations were administered to both the experimental and the control group students on a pre-test and post-test basis. The pre-test was administered October 1965, approximately three weeks after the beginning of the initial semester of the project and on the first available national testing date. The post-test was administered January 1967, approximately two weeks prior to the completion of the last semester of the project and on the last available national testing date. These data have been reported in Chapter III.

(4) Student Teaching Grades. Grades earned in student teaching by students in both the experimental and the control groups were used for comparison whereas grades earned in other professional courses were not. The rationale behind this decision was that while instructor bias might influence grades in the professional courses taught on campus by college staff, the student teaching grades were earned in public schools in classes taught by supervising teachers who were unaware of the project. This decision was further justified by the fact that no supervising teacher had more than one student teacher, thereby eliminating the possibility that one supervising teacher might have both an experimental student and a control student under his supervision. The public school supervising teacher held the complete responsibility for assigning the student teaching grade; the Director of Student Teaching had the responsibility for collecting the student teaching grades and reporting them to the project director.

F. STATISTICAL METHODS

Statistical methods were applied to data from each of the three major sources: (1) the Classroom Observation Record, (2) interaction analysis, and (3) the National Teacher Examination. The techniques have been described as follows:

1. The Classroom Observation Record

The Classroom Observation Record (COR) was administered three times for each subject. The average rating for each subject on each of the 22 items of the COR was the unit of analysis.

Comparisons were made between the experimental and the control groups on each item, on the pupil-behavior composite score (Items 1 through 4), on the teacher-behavior composite score (Items 5 through 22), and on the total score. A test of the difference between independent sample means of the experimental and the control groups was employed for each comparison using the t-ratio which, under

$$t= \frac{\overline{X}_A - \overline{X}_B}{\frac{5^2}{n_A} + \frac{5^2}{m_B}}$$

the null hypothesis, is distributed as Student[18]-t with $n_A + m_B - 2$ degrees of freedom.

2. Interaction Analysis

An analysis of variance technique was used in this study to determine the significance of the simultaneous effect caused by the academic teaching area and by the group treatment (experimental or control) on mean number of tallies of a category recorded per student per hour. To conduct the analysis the Biomedical Computer Program BMD05V[19] was employed. This program performs the calculations required for a general linear hypothesis model.

Let x, ..., x_p denote the design variables (nine were used in this study) and y denote the dependent variable. The general linear hypothesis model used was

$$y=\beta_1 x_1 + \dots + \beta_p x_p + e$$

where β is a least squares estimate and e represents an error term.

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[18] Maurice M. Tatsuoka and David V. Tiedman, "Statistics as an Aspect of Scientific Method in Research on Teaching", Handbook of Research on Teaching, The American Educational Research Association (Chicago: Rand McNally and Company, 1964), p. 150.

[19] Biomedical Computer Programs, University of California, Los Angeles. Edited by W. J. Dixon, 1964, pp. 543-549.

Three hypotheses were tested. The first hypothesis assumed that the sums of squares of the terms associated with academic areas were zero. The second assumed that the sums of squares of the terms associated with the group's treatment were zero. The third hypothesis assumed that the sums of squares of the interaction terms were zero.

For each hypothesis the program computed:

(1) Least squares estimates
(2) Sum of squares explained by hypothesis
(3) Residual sum of squares
(4) Degrees of freedom of residuals
(5) An F-test

A t-test was employed to analyze the differences between mean tallies per student for independent samples of the experimental and control groups in each of four academic areas. A t-ratio was obtained for each of the sixteen categories of classroom verbal behavior. A description of the test used was the same as has been given in Section 3 below.

3. The National Teacher Examination

A variance-ratio test revealed that experimental and control NTE pre-test variances were not significantly different. A pooled variance-estimate was used in the denominator of the t-ratio. The pooled variance-estimate was defined as s^2

$$s^2 = \frac{n_A s^2_A + n_B s^2_B}{n_A + n_B - 2}$$

in which n_A and n_B were the number of observations in the experimental and control groups respectively, and s^2_A and s^2_B were the corresponding sample variances.

The test of the difference between independent sample means was computed using the t-ratio

$$t = \frac{\overline{X}_A - \overline{X}_B}{\frac{s^2}{n_A} \quad \frac{s^2}{n_B}}$$

which, under the null hypothesis, is distributed as Student's t with $n_A + n_B - 2$ degrees of freedom.

The t-test was applied to the difference in NTE mean pre-test scores of the experimental and control groups for the professional education subtotal mean score, the general education subtotal mean score, and the grand total mean score. As is indicated in Table 4, page 96 of the findings, analysis of the NTE pre-test scores yielded t-ratios which were not significant. On the basis of the t-ratios computed for the NTE pre-test means, and on variance-ratio tests applied to experimental and control gain score distributions (which provided insufficient evidence to reject the assumption of homoscedasticity), a test of the difference between mean gain scores seemed justified. The t-test was applied to the differences in mean gain scores of experimental and control groups for the professional education subtotal mean gain, the general education subtotal mean gain, and the grand total mean gain.

CHAPTER II

A DESCRIPTION OF THE EXPERIMENTAL PROGRAM

Although the experimental program has been described briefly in Chapter I, the investigators believed that a more detailed description would enable the reader to understand the elements of the program which were radically different from the more conventional programs of professional education and from the control program specifically. It has been the purpose of this chapter to describe the day-by-day activities of each of the three phases of the experimental program in considerable detail. Much of the material in the chapter has been drawn from a diary kept by a participant in the experimental program. Details of the activities and the impressions of the writer and other students have been candidly recorded.

The writer of the diary was a female graduate student of high ability who had completed a liberal arts degree at the college. The student wanted to become certificated for teaching and had taken no professional education courses but as a graduate student was ineligible to participate in the project. The project director agreed to permit the student to enroll in the experimental program, participate fully in all of the activities and to receive credit for the program toward certification. In return she would provide a day-by-day account of her activities as well as those of the other students to the best of her ability and would conceal the sources of her information. The experimental students were informed of her role and assured that their comments would be treated anonymously.

Chapter II has been presented in four parts: (1) The Rationale of the Study, (2) The First Phase; Observation, (3) The Second Phase; Participation, and (4) The Third Phase; Student Teaching.

A. THE RATIONALE OF THE EXPERIMENTAL PROGRAM

The experimental program was based on several theories and unvalidated assumptions of the investigators; these theories and assumptions played prominent roles in determining the curriculum and instructional procedures used in the program. The investigators were well aware of the controversy concerning the value of courses in professional education. Despite their conviction, however, that the professional courses contributed significantly to the preparation of effective teachers, they also were aware that there was little or no documented evidence that such courses produced behavioral changes in classroom teachers, and furthermore, that such evidence was desperately needed if the professional courses were to continue to be justified. The investigators believed that the professional courses should be re-evaluated and possibly restructured to assure that they demonstrated the best that is known about teaching and learning.

The investigators and project staff members were in agreement that there are both curriculum and instructional theories in the professional content courses which could not be supported under a "best that is known about teaching and learning" assumption. The project staff was equally in agreement that the common indictments of professional courses were equally applicable to the substantive field courses. An unordered list of the concerns expressed by the staff were as follows:

1. The professional courses are largely expository; even in the methods courses, the techniques for using the small group process are often taught by the lecture method.
2. Because of the expository nature of the courses, the experiences provided the students tend to be vicarious rather than direct. Little opportunity is provided typically for the student of teacher education to become involved in the teaching-learning process.

3. The theory presented often precedes the opportunity to apply it by as much as two years.

4. There is often an overlapping of content, as it may appear in two or more courses. Furthermore, corresponding courses in different institutions may bear little resemblance to each other, indicating a lack of agreement as to what should be the content and objective of the course.

5. Conventional grading systems tend to make factual information the primary goal of the teacher education student rather than the acquisition of understandings and conceptual frames of reference which are more relevant to behavioral change.

6. Teacher education is characterized by a paucity of facts which are unaltered by the situation; consequently, the development of concepts, understandings, and frames of reference are the desired determinants of behavioral change.

7. Instructors often tend to rely heavily on their own teaching experiences for content, or in an effort to make the course more substantive, take a textbookish approach which may concentrate on minutiae.

8. Professional courses sometimes autocratically verbalize the need for a democratic atmosphere in the classroom. Since students tend to teach as they are taught, efforts should be made to provide teacher education in classrooms as "threat-free" as possible. In other words, to verbalize the need for teachers to understand the problems, interests, and needs of their students in an authoritarian manner does not appear to be notably effective.

As a result of the concerns expressed by the project staff about typical professional courses, a set of operational principles were used throughout the experimental program. The three instructors of the experimental groups, as well as other professional people who assisted with the instruction, used these principles as guide lines:

1. Formal lecture, that is prepared lecture, will not be used. Informal lecture may be used if it (1) is spontaneous, (2) answers an expressed need or anxiety of a student, (3) is necessary for immediate progress, and (4) is concise and to the point.

2. No tests will be given during the three-semester duration of the project. Tests tend to stress the acquisition of facts whereas the project is concerned with effective behaviors. Grades will be given at

the end of each semester primarily as a means of encouraging students to remain in the teacher education program or to withdraw. Students to be encouraged will receive "A's" and "B's"; grades of "C" or lower will be interpreted as encouragement to consider another profession or field.

3. Laboratory experiences will accompany theory insofar as possible. Content will be unstructured and flexible, and theory, that is content to be treated both by discussion and readings, will grow out of student interests and concerns which are developed as a result of laboratory experiences of observation or participation.

4. Sarcasm and ridicule will not be used; students will be treated with dignity and respect at all times. The experimental classrooms should be characterized by friendliness, freedom from threat, and dedication to both the cognitive and affective involvement of the student in the teaching-learning process.

B. PHASE I OF THE EXPERIMENTAL PROGRAM: OBSERVATION

69 of the 71 students selected for the experimental group appeared for classes on Monday, September 20, 1965. These students were assigned to one of three sections; Section A, taught by the principal investigator and assisted by Jeanette Bigge, was assigned 29 students; Sections B and C each were assigned 20 students and were taught by Dr. James Bell, a project staff member. The reporter, Caryn Shelor, who was to keep a detailed account of the daily activities, was assigned to Section A where the diary of daily activities was derived largely, from Section A, although she occasionally attended the other sections. Since the project staff held frequent meetings to discuss the progress and direction of the classes and since efforts were made to keep the three sections in as nearly similar activities as possible, the descriptions contained in the diary have been considered as representative of all three sections.

It should be pointed out that the reporter had not been made acquainted with the rationale of the program and was no more acquainted with the experimental program than were the participants; her reactions to the experimental program were typical of those of the experimental students. A brief day-by-day account of the activities has been presented in the following pages; the single-spaced materials have indicated the direct, unedited quotes of the reporter.

The week of September 13

On Monday, September 13, the students were shown for the first fifteen minutes of class a video-tape of a junior high school science teacher dissecting a rat before his science class. At about the fifteenth minute it became apparent to both the junior high school students and to the college students that the rat was pregnant. It was equally obvious that the teacher was somewhat perplexed but equal to the occasion. The resulting interest of the junior high school students and the sudden burst of their spontaneous questions brought about a series of questions from the college students: "Did the teacher know the rat was pregnant?"; "Are junior high school students generally this enthusiastic?"; "Should the teacher depart from his lesson plan to answer the questions of the students growing from this unexpected situation?" These questions were discussed at some length with spirited college student participation. The discussion tended to center around characteristics of adolescents. At the end of the first period, a reading was assigned, or rather suggested, which dealt with the nature and the characteristics of adolescents.[1]

The second day was similar to the first; the remainder of the video-tape was shown and the students again showed some anxiety. This anxiety was finally verbalized by a student who said, "This is all very interesting, but I don't know what I am supposed to look for." This feeling was seconded by a number of students who not only shared the feeling, but who obviously felt that they needed some information about the direction of the class. Other students showed interest in the closed-circuit television system, particularly the video-tape recorder and asked that the system be explained. The remainder of the period was therefore spent discussing the possible contribution of observation to prospective teachers, demonstrating and explaining the closed-circuit system of television, and suggesting additional readings which were relevant to the discussion.[2]

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[1] M. L. Bigge, and M. P. Hunt, Chapter 8, "What is Adolescence," and Chapter 9, "What are Needs and 'Developmental Tasks' of children and Youth?," Psychological Foundations of Education, Harper and Row Co., New York, Evanston, and London, 1964.

Since the first two days of class revealed a feeling of need on the part of the students for some direction for their observation via video-tapes, the project staff decided to instruct the students in the use of the Flanders System of Interaction Analysis.[3] The Flanders System categorizes every conceivable interaction between a student and a teacher into one of ten categories which are recorded progressively by the observer every three seconds or every time the category changes. The categories to be tabulated were the following: (1) Acceptance of Feeling, (2) Praise or Encouragement, (3) Accepting Ideas, (4) Asking Questions, (5) Lecture, (6) Giving Directions, (7) Criticizing or Justifying Authority, (8) Student Talk Response, (9) Student Talk Initiation, and (10) Silence or Confusion. By recording the categories in sequence, they could be plotted in pairs in a 10 x 10 matrix in such a fashion that the observer could not only tell how much time was spent in a given category but also what kind of activity preceded and followed any category.

The next two days were spent practicing the interaction analysis system; short video-tapes were shown and the students recorded their observations.

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[2] W. A. Fulligar, H. G. Lewis, and C. F. Cumbee, Readings for Educational Psychology, "Experiments on Autocrats and Democrats Atmosphere," Thomas Y. Crowell Company, New York, 1964. pp. 459-464.

[3] See Appendix A for a description of the ten categories.

Since the Flanders System was designed to point out direct and indirect teacher influence on students, attention was given such influence in discussions. Additional readings were suggested.[4]

The Week of September 20.

For the first four days of the week, observations were continued via videotapes on which the students practiced interaction analysis. A typical day, Friday September 24, was recorded in the diary as follows:

Comments made by students before class: "I feel a part of the class." "If you don't follow what the class is doing, you're really missing something." "I never had a class like this before." "Now I feel like I'm ready to observe."

One instructor said that we would view one tape, plot a matrix, and make a composite matrix. It sounds interesting to be able to compare all of our ideas. Instead of going directly to the tape, we skipped to an entirely different subject-student questions.

A. Questions students asked:

  1. Why are we reading outside books?
  2. What about tests?
  3. How will we be graded?

B. The instructors discussed the purposes of the class.

  1. This is a lab, not a lecture or theory class.
  2. The class is for preparing our own teaching techniques.
  3. We are to receive one or several big concepts from our readings rather than just learning facts.
  4. We should ask questions in our teacher conferences (seminars).
  5. Maybe our comments in the conferences (seminars) are enough to test us.

C. The students suggested small student discussion groups.

  1. In their own fields of teaching. (sounds good)
  2. Change leaders in the small groups.
  3. Have teacher-students discussion groups to receive more or a "sharing" feeling.
  4. Each small group will report back to the total group.

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[4] Bigge, M. L. and Hunt, M. P., op. cit., pp. 1-28.

Kneller, George F., Educational Anthropology, An Introduction, John Wiley and Sons, Inc., New York, 1965, p. 171.

After this discussion, the teachers used category three (accepted and used ideas of students). Good. It's good that we can change the semester's itinerary and that we can use the students' ideas for improvement, but it took too long to discuss this (one-half hour.)

Finally we had the five minute film (video-tape) about the meaning of the word "excellence"; there was much talking after the film. The students found it difficult to distinguish between Categories 8 and 9. How can we tell? We used the matrix. It took fifteen minutes to fill it out. (I was lucky and had exactly 100 observations.) Some had fewer. We handed in the matrices to be tabulated for Monday.

The Week of September 27-October 1

The week of September 26-30 has been reported entirely through excerpts taken from the diary of the recorder:

Monday, September 27.

Student's Remark: "We have so much freedom that unless a person really has a great desire to learn, he will get nothing from the outside readings."

The instructor handed out last Friday's matrices and called the students by their first names, which was more personal.

We wondered who was the new man at the front of the room. It was later announced that it was Mr. X, the television teacher whose video-tape we would watch today. Mr. X would try to point out several variations of teaching in the following TV film. After a few minutes of tabulation, we stopped. (thank goodness). It was tiring to write numbers for such a long time (almost 10 minutes) and we had no time to watch.

The film was of a biology class in junior high. I liked the last part of the tape best because he asked questions and made the students think a little more. Mr. X. wrote on the chalkboard and helped them see what he was trying to teach. He even let some of them go outside (unsupervised) to observe vegetation around the building.

The tape was stopped here and the question was asked, "Is it good to let them go outside and have that much freedom?" It was brought out in the discussion that the more responsibility given the students, the more responsible the students would be.

Back to the tape — it was evident that the students liked the teacher. Mr. X. read a boy's report of ostriches. The tape was stopped so we could discuss how the teacher had assisted the boy in criticizing his own work. This was "progressive education." The college students have read some about this in the outside readings (Educational Anthropology by Kneller). It was a perfect tape to be connected with our outside readings.

Tuesday, September 28.

We were reminded today of the goals of the class-observation and participation. We are expected to observe and participate five hours a week in our field of teaching plus two hours of conferences with our instructors and others in small groups. We should get in and get the 'smell' of the real classroom instead of just watching TV all the time. It was suggested that we visit several classes in the college laboratory school. The students seemed interested in going because they didn't have to do it.

Later we viewed another video-tape; the chairs were moving constantly in the tape. Junior high school students can only sit still for three or five minutes, at a time. (So school adminstrators should buy chairs that don't squeak.)

One of our instructors said that junior high age kids are awkward. The other instructor was opposed to this. He said that adolescents are agile and skilled although they might appear awkard in certain social situations, and that one should observe them both in and out of classes. So he proposed the question, 'Is an adolescent naturally awkward?' This little argument stimulated us and made us want to learn, so we'll read on the subject. It was amusing to hear the teachers.

In the tape, the teacher kept asking the students "Are you sure?" and "Why?" Sometimes the answer was "Because it says so; right here!" In the discussion that followed the tape,

1. The students liked the "Are you sure?"
2. We discussed letting them go outside to look at the plants.
3. How rigid is Mr. X's teaching plan? (very loose) "Planning is always geared to students' needs" and "I have a broad goal and the students should reach it any way they can." replied Mr. X.
4. Are projects and individual reports as valuable as reading in books? Yes, seems to be the answer.

We, the college students, weren't restless at all until the period ended, and students started coming into the large lecture hall adjoining and the Charleston music started. A student's comment was, "This is my favorite class. I wouldn't mind skipping other classes, but I don't want to miss this one."

Wednesday, September, 29.

We were told today that the next major phase or project of the class would be to prepare a case study on a junior high school student. Dean X. will explain how we do this in the next few days. This project will carry on through the remaining part of the semester. We will need to "get to know" the students.

We saw another tape . . . .

Thursday, September 30.

It was announced today that one of our next projects would be "role playing" in which each student of the class would teach a twenty-minute lesson to the class. Dr. X. discussed the lighting in our classroom and the possibility of video-taping our class. This would give us a chance to see ourselves on TV. We "clutched" at the idea, but we do see how it would give us a chance to "get into the water to see how cold it is." The noted advantages of it were:

1. We could see other beginning teachers "in action."
2. We could see ourselves and analyze our teaching.
3. It will give us an opportunity to compare our work with what it will be in the future.

Now we are watching (observing) more objectively and noticing direct and indirect influence. Direct influence can be good, but indirect influence is better most of the time.

The sound in the tape today was bad. The TV teacher wasn't very friendly and kept throwing his weight around. He seemed demanding. Maybe it was because the sound was bad or the fact that he was nervous because he was being taped. He had trouble getting the students to talk. At times he sounded as if he were an auctioneer selling something and the students were reluctant to bid. At the end of the tape the college students made remarks concerning the tape:

1. Was the teacher trying to aggravate the students into learning?
2. He makes them tell him and he plays dumb, but do they learn?
3. One girl almost yelled an answer.
4. If they are scared, do they learn more? If it's so threatening, you may be so disturbed that you are afraid to be ridiculed and you won't answer.
5. Something is restricting these student's actions. What is it-social pressure, are they prepared, are they afraid of being televised?

Remarks of the students after class: "This is my favorite class." "I'm lucky to get into this class." They showed enthusiasm toward giving demonstrations (role-playing). However, one girl said, "I want a good old-fashion lecture. I'm not learning anything, and I want more of a background in the educational ideas."

Friday, October 1.

We saw another video-tape-one that we had seen earlier in the course. We tabulated our observations, but changed (from the previous tabulation of this film) many observations to category 3 (Accepts and Uses Ideas of Students). When Mr. X. asked questions, did he really want answers? We felt that many students wanted to volunteer their responses. There were many 9's (Student Response-Initiated). The teacher answers and clarifies and the students initiate response. Is this an unusual pattern? When the teacher laughs with the students, is it a 1 (Accepts Feeling) or a 2 (Praise or Encouragement)? Several students in the class are hesitant about using 1's and some haven't used them yet.

The week of October 4-8.

The first three days of the week were devoted to continued observations of video-tapes, a discussion of lesson plans, and a visit to the curriculum library. The visit to the library was made since the students would soon begin "role playing" in which they would present a fifteen to twenty minute lesson to the class. The students would prepare the lesson for any age group in any subject field, and the class would respond in what they considered a typical fashion. During the visit to the curriculum library, the experimental classes were introduced to curriculum guides, sample lesson plans, state-approved textbooks, and reference books. The last two days of the week have been reported directly from the reporter's diary.

Thursday, October 7.

Some students volunteered to tutor students who were having trouble in certain fields. This service is being "run" by the Dean's Office. I was surprised that students would be this willing to give of their time and patience to help a fellow student. This will be very nice.

Dr. B. was introduced by Dr. S., as our guest speaker for today. He explained to us about our project-the case study:

A. A case study is an important beginning point for teachers in training.
   1. Dealing with people
   2. Can become involved with child understanding
      a. Reading about them helps, but involvement is better.
   3. Discussed Culture (as seen in Kneller's Educational Anthropology)
      a. (Page 4) "Culture is the total shared way of life of a given people"
      b. Culture is learned
      c. "Selves" are all different and behave differently

(Dean B. jokingly wanted us to ask questions and for the class to have interaction because Dr. S. might even be using the "interaction analysis" on him!)

B. Making a case study is a professional responsibility
    1. We can discuss large general aspects
    2. Don't mention names or embarrass people

C. Procedures
    1. Notebook (Diary) for everyday behavior
    2. Well-structured report
    3. Relate self culture to the behavior

D. What is the goal or purpose?
    1. In Education
    2. Learn main influences of people
        a. To be able to promote efficiency
        b. To help the student to do his best

Dr. S. pointed out: "How a person feels may be more important than what he knows." "All forms of rejection are evil."

Patterns, ideals, and systems are learned, and these things can be changed. Through involvement you do change! Through this case study

1. We'll be involved.
2. We can have an experience.
3. We may be able to help the student reorganize his patterns.
4. We can get away from some of the phony methods of teaching.
5. We can see that "everyone counts".
6. We can see the emotional feelings.
    a. Like the paralyzing affects of parental rejection (even if the student has a high IQ, he may not do well in school).
7. We can help people understand and to help them reduce their load.

We are totally unprepared at this point and our involvement will coincide with learning theory.

How do we find personal things about them?

1. Visit the home.
2. Get acquainted and establish a friendship with them.
3. Find out everything possible through this relationship.
4. Don't make it a "big deal!'

How do we meet them?

1. The teacher will point him out to you!
2. Don't just "quiz" him!
3. Just talk friendly with him.

First Step:

1. Meet with guidance counselor.
   a. See the student's folder.
2. Can talk with the student about work experience.
3. Check on health factors.
   a. Physical feelings, i.e. teeth, nose, hair, weight, etc. (Students don't want to be different in looks).
4. Parent-child relationship is determinent!
5. The home is very important.
   a. Feelings of comfort
   b. Reading materials
   c. Family activities and attitudes
6. Try to find a goal for the person's total situation.
   a. Give them hope for the future.
7. Behavior is influenced more by feelings than intelligence!

Dr. B. will come back tomorrow. We felt some anxiety toward this project. Some of the students' comments after class were:

"I feel like I'm being made into a 'carbon copy person' and I don't want to have anything to do with all this!"

"I feel like I've been thrown out of a boat and I can't sink or swim.

"I'm excited because I heard that my case study's mom is really a character!"

"Is this correct procedure for our class?"

"Can we do a good enough job from just this observation?"

"This case study is for the birds!"

"Why do we have to go into the home? This's ridiculous and I don't want to do it! Why should I pry into another person's private life?"

But someone else remarked: "This class is wonderful and very valuable!"

Friday, October 8.

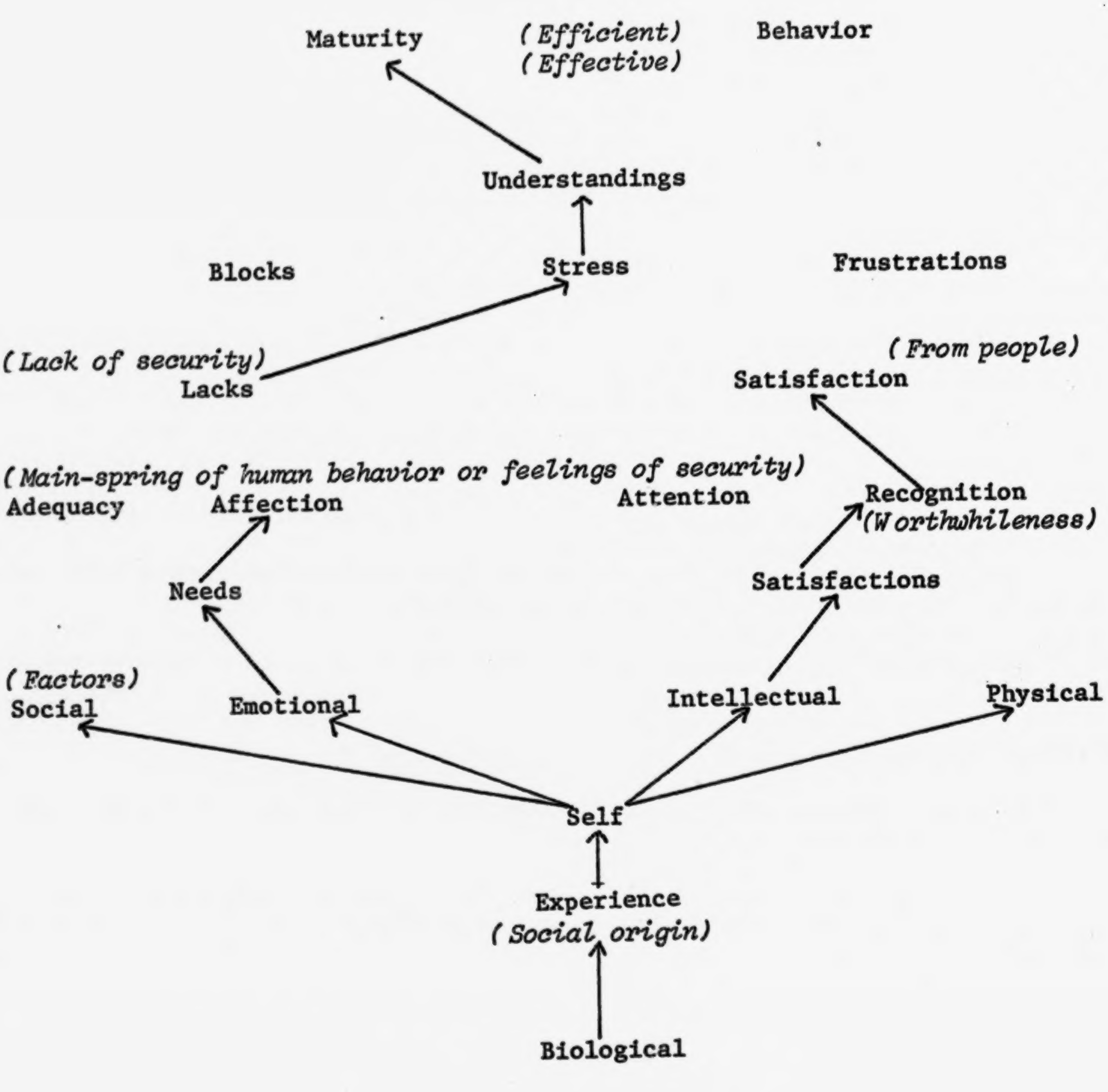
Miss B. suggested that we could come over to Roosevelt to observe our class study students.

Dr. S. assigned Chapters 1, 2, 3, 4, and 11 in Learning Theories by Bigge, today's pamphlet on adolescence, and Readings 1, 2, 3, 5, 6, 7, and 8 in Fulliger's book.

Dr. B. spoke again on our case study projects. (Refer to Behavior Structure on next page.)

1. Must strive to understand
   a. This is a learning exercise!
   b. Must learn factors in understanding (Not just "facts", kept for a short time for a test.)
   c. Give our opinions! Invent ideas.

OPERATIONAL STRUCTURE IN FIELD OF BEHAVIOR


Maturity
(Efficient)
(Effective)
Behavior
Understandings
Blocks
Stress
Frustrations
(Lack of security)
Lacks
(From people)
Satisfaction
(Main-spring of human behavior or feelings of security)
Adequacy
Affection
Attention
Recognition
(Worthwhileness)
Needs
Satisfactions
(Factors)
Social
Emotional
Intellectual
Physical
Self
Experience
(Social origin)
Biological

(Dean B. developed this "workable" frame of reference.)

2. Lack - we don't have a workable structure to deal with complex human behaviors.
    a. Operational Structure - we can use it well.
3. A disturbed person withdraws from people.
    a. Need to relate their satisfactions to people.
    b. Lack of satisfaction is a block, (stress, frustration, and disorganization.)
       Einstein had no lacks to block his efficiency!
4. It is important to understand this structure!
    a. Try to help people by understanding, counseling, talks, assistance, and help them have achievement in school.
    b. Always remember that people like to achieve.
    c. Both heredity and environment are important.
        1. Some say that one is more important than the other.
        2. "Interactive" studies show that both heredity and environment are important.

At this point we stopped and Dr. S. asked questions about the "theory of the theory" or the purpose of this structure.

5. Our greatest lack is data that we gain from research!
    a. Some research shows a real relationship between home and school achievement. They have the data to prove this.

Dr. S. explained his and Miss B's. research on "bibliotherapy." The more problems a child knows that he has, the worse he does in school. A warm, outgoing person achieves more in school. Ability isn't the only factor relating to school achievement. Personality is important!

6. Feelings are important.
    a. Personality is a configuration of experiences.
    b. The "self" is of social origin. Some can stand more stress than others. Very complex.
    c. Combinations of innate and learned factors can lead to almost any possibility.

Many students took notes and copied the structure down for further reference. A few excerpts from a research book by Linden were read. Then we continued to go over the data sheet to be completed about "our student."

1. Should we find the family's income?
2. Use our judgement about religion, about family aspects, or other possible "touchy spots!"

It was suggested that those who were tutoring college students might "use" these people for their case studies. Why is the student having trouble in this class? - The students in the class seemed favorable to this idea.

We will be calling on Dean B. during the semester for further help in the project.

Miss B. set up times for us to observe and have a chance to meet "our students."

The Week of October 11-15

The week was devoted to role playing by the students. This week has been considered typical of the role playing process and has been reported exactly as recorded in the diary.

Monday, October 11

Student comments: "I hope that we learn what we ought to from this class. After that Saturday test, I realize that there's a lot to learn." "I like the class!!"

The chairs were set up in regular class form facing north with a blackboard at the "front" of the room.

Dr. S. handed out the names of more people who needed to be tutored. We were asked to continue the readings assignments and to try to "plow" through even the more difficult theories. We will have 50-minute meetings to discuss the readings. Sometimes it is difficult for groups to get together and meet.

Luck wasn't with us and the machines weren't working well enough to use them for today's "role players." It's too bad because it helps to see yourself as others see you. The practicing teacher could choose whether or not he'd like to see himself on the monitor, but he chose not to watch himself. We will not use a "prepared" system to analyze the person and his presentation, but we'll write out a paragraph about his work and give him constructive criticisms. He will then read the paragraphs and get a general idea of the class's opinion of his performance.

(The following observations will be my own opinions. I may not like someone's teaching because I may not be interested in his field and visa-versa! I will write it as I see it.)

Bill Reust was the first "victim" and taught us as tenth graders geometry. The blackboard proved very useful for his explanations of lines, angles, and planes, etc.

He asked questions and explained his points fairly clearly. He handed out an "exercise" and gave us protractors with which to measure angles.

Some girls in the class needed help with their protractors, and he was eager to help!! He could answer questions well. (What are supplementary angles?)

We needed more time to measure our angles. After each drawing, he produced a chart and discussed the relationships of each angle to the others and to the whole. He had to remind some of the students of previously mentioned facts.

He was ready to form a postulate and had the students help him. Girls in the class were reluctant to speak.

Bill explained that in the first part of his teaching period he used deductive reasoning, so he proved that inductive reasoning could also be used in geometry teaching. It got a little confusing because there were several ways to arrive at a certain conclusion.

Near the end, he reviewed the concepts which he had demonstrated. "Time was called" and Bill ended very well. 20 minutes.

Carol Arnett was the second teacher and gave a lesson in shorthand. Her voice was a little shaky. We started out with a funny "race." We wrote "face" in regular long hand writing, while she wrote it in shorthand.

She moved very quickly and kept us interested in reaching our goal— to write "face", the short way.

We had to learn a new spelling for words we already knew. After each group of new symbols we reviewed the accumulative chart on the board.

I really felt as if I learned something. Even the boys seemed interested. Dr. S. remarked that he now appreciates secretaries more because they have had to learn all of that.

Tuesday, October 12.

When asked what he thought about the class, one boy remarked, "Fabulous, just fabulous!"

We almost got to watch Mr. T. teaching in a foreign language tape, but it ended too soon. If we want to visit Miss B.'s class to observe our "case study", we should do it this week. She'll be gone next week.

Dr. S. discussed how and when the taping will be done. They arranged times when the "role players" could see their "playback", and some changed their "conference" times.

Galen used the poem, "How They Brought the Good New from Ghent to Aix" by Browning, for his teaching of an eighth grade English class. We discussed our own previous horse riding experiences. We named famous horses.

Then we looked at the poem (about an exciting horse ride).

1. Discussed similarities between our own horses and Roland, the main horse in the poem.
2. He showed a picture of the action from a book.
    - a. Horses hurrying.
    - b. Roland did make it.
    - c. It was early morning.
    - d. We don't even know what the news was!

Galen continuously asked questions and received easy responses! Someone in the back couldn't hear. (It was a little noisy with the T.V. camera.)

3. We discussed the different times of day (during the ride).
    - a. There was a lot of voluntary interaction.
4. He showed us the location of the "ride" (on a very small map).
5. Talked about the importance of horses and praising horses.

Many students laughed and talked. He closed well! It was the first half of a discussion of the poem.

Before the second half of the lesson, the class (while the men changed the tape) became relaxed by Orpha's enthusiasm. She discussed with us how it feels to ride a horse, or walk, gallop, or trot, etc. (Some of her suggestions were definitely geared for younger students than eighth graders.)

1. Action - we made noises as she read the poem! (Galloping sounds — it was amusing!)

2. Rhythm - She had someone spell it.
    - a. It was described as a pattern of accents and tempo.
    - b. Someone read a verse of the poem without rhythm and then we compared the difference.
    - c. Someone else read it while the class "galloped!!"

3. We discussed the possibility of the horse going 100 miles from midnight until morning.

4. The students looked up new words from the poem. Much interaction!

5. Summary:
    - a. Rhythm
    - b. Tempo
    - c. Content

One question was asked about the rhyme of the poem, but Orpha could not answer it - "I'll wait until tomorrow!" (Was this good?) The class chuckled as if she were just avoiding the question.

The class commented that it wasn't hard to act like eighth graders since we giggled and wiggled a lot!

There were a few minutes of class left over and we saw parts of Orpha's taping. They discussed possibilities of providing better lighting in the room for better taping.

Wednesday, October 13.

Students' comment: "The class is fun, but I'm not going to enjoy my 'role playing'. I liked the first part best when we could see how it's done. I want to see Miss B. teach before I do my 'role playing'."

"Role Playing" — Sr. Class English. Subject — Hamlet. "By D.J." was written on the board when we came into class.

We were given an assignment to read the first act of the play, ("To be or not to be," etc.)

Dr. S. discussed with us the validity of the comments which the students are handing in to the "playing" teachers. Was it really as bad as they had thought that it would be? Maybe they weren't as afraid as they had planned to be.

Since some of the students had been observing at Roosevelt High School, we discussed the freedom given at the high school and how the "kids" do work toward certain goals and take on extra serious responsibility. Maybe that is due to the trust which is felt in the atmosphere and to the attitude of the overall classes.

The question is "How is a democratic attitude developed while the teacher tells the students what to do and what not to do?". The student observers at the high school noticed that these pupils were given the chance for evaluating their peers in their work. We wonder how Roosevelt High School compares with other high schools. We may become disappointed when we go out because the high school which we teach in may not be this progressive or free or modern, and it may not be so much like an experimental laboratory. We will finish up our "role playing", and then we'll watch more real teachers (from Roosevelt High School) on TV.

D.J. started by greeting us with a cheery "Good Morning" and proposed several questions to us concerning the story of Hamlet. Dean put certain ideas about Hamlet's character on the board (responses given by the students). The students tried to substantiate their statements but found it difficult because it's been too long since we read the play.

D.J. used the students' ideas well and he knew the poem "backwards and forwards" and he reviewed it with us! He was very relaxed and presented the lesson to us in a "grown-up" manner.

The students discussed Hamlet and the evolving of the play. Hamlet:

1. No confidence.
2. Thoughtful.
3. Sensitive.
4. Honorable.

Story:

1. Hamlet's father died.
2. His mother remarried hastily.
    a. She married Hamlet's uncle, his real father's brother.

Dean suggested that the students take notes - "You may use your notes on the essay test at the end of this section of study." Very helpful!

Only a few students in the class made remarks, but they knew enough "to keep the ball rolling." Dean outlined the character of Claudius too, and went back to support and review the points made. Very good!

M.F. continued the discussion of Hamlet by using the soliloquy "To be or not to be", etc. The students responded to Mike's request for the meanings of the first line of the quotation.

The "question" is maybe to be honorable or not to be honorable. Mike had us paraphrase the first few lines in our own words. This was a good exercise to make us think, especially for those of us who might have been daydreaming! There were several different ideas mentioned and some students disagreed with others. M. used their ideas and prompted interaction.

Then he read his own paraphrase and substantiated his ideas. But in a real class, could we spend this much time on just 8-10 lines? We decided that each person must interpret this work and related it to his own experiences.

There wasn't enough time for anyone to challenge M's. interpretation — too bad.

Both D. and M. were neatly dressed. Maybe the teachers' dress is tending toward shirts and ties instead of full suits. That might even give a more relaxed feeling to the class.(?)

Student's comment: "It's a very good program."

At 9:30 A.M. a discussion group of 9 (mixed majors) met in the Lecture Hall after the regular class at 8:30.

We discussed adolescent sexual and physical changes:

1. Big girls, little boys.
2. They ask, "What is happening to me?"
    a. Teachers can help them understand.

3. Changes are more noticeable in boys.
4. Don't generalize completely!
    a. You can't judge people because individuals are too complex!!
    b. You can discuss our case study students only with each other and in an intellectual manner so we can compare objectively!
5. We discussed the readings on adolescence.
    a. Which is more important — heredity or environment?
    b. Is it active or passive?
    c. The Aperceptive Mass Theory is the "traditional lecture" system (pouring in of information).
    d. We discussed "conditioning" — using associations and comparing so you'll respond intellectually to the stimuli.

6. Each person has his own teaching theory.
    a. We are forming ours now by seeing the many different theories.
    b. Start with the theory "the mind has faculties which need to be exercised" — Faculty Theory.
    c. Theories have chronological order. They don't change completely, but they just add to each other!

7. The purpose of our outside readings is to justify these readings with practical actions and to help us form a theoretical construction.
    a. Read, see, learn, and experience (act).
    b. All theorists have contributed to what we are learning.

8. We discussed adolescence — period of stress.
    a. Mostly in U.S. (not all other places.)
    b. What other problems arise from other societies in which adolescence has a smooth step into adulthood?
        1. We should, as teachers, try to "smooth out" the transitions during adolescence.
    c. Should the gap between teachers and students be reduced?

Students' comments: "Dr. S. dominates these little discussions. We should get more of a chance to talk. We're not even interested in hearing his 'lecture'." "I think it's best when Miss B. just asks a few leading questions and then we can get a good discussion going."

Thursday, October 14.

Miss B. had a schedule on the board and we signed up times to meet with her and Dr. S.

J.T., one of today's "role players" said "Good Morning." She had given us handout sheets on which we could write our own definitions of five words — Individualism, Equality, Rights, Freedom, and Anarchy — and also write the dictionary's definitions. (Some students did this assignment and others didn't.)

She discussed each word by using the students' ideas and remarks. She used words such as conformity, sameness, and development as she showed the correlations between the words. When the theories and actions, which these five words describe, are carried to extremes, it can be bad.

Rights and Freedom are very similar. J. illustrated an example of "anarchy" on the blackboard. They don't have freedom in Anarchy! (She didn't erase the writing on the board and it appeared messy!)

As a "prop", she had made a clever chart showing a few of the different kinds of government and their relationships to freedom and authority. The poster had a moving part which made it very eye-catching. She had very good control over the group, and they stayed interested even though studying five words could have been a boring subject.

A.M. gave her "role playing" on bookkeeping. Students helped her formulate a list of reasons for keeping books.

She had a little trouble showing the proper equation for assets, but then she corrected it.

We completed a paragraph by substituting the words "credit" or "debit" for the words "right" or "left." Now we know the meaning of those words! The exercise was fun.

There was also a discussion of certain forms of transaction. A. tried to show how a man could "balance" his books with assets, liabilities, and proprietorship. She was confused and kept making mistakes and the students tried to correct her. I doubt if anyone really understood! Too bad!

Even though we "like the class", we are just typical college students and we became overjoyed when we heard the words: NO CLASS TOMORROW!!

October 18-November 5.

The three-week period beginning on October 18 and ending November 5 was spent largely in role playing in which the students of the experimental classes continued to present short lessons to their classmates. As had been the practice, video-tapes were made of each teaching episode, and these tapes were critiqued with the students by the instructors.

November 8-12.

Monday, November 8, was the last day of role playing and the activities of the class changed. The last four days of the week have been reported directly from the diary.

Tuesday, November 9.

Miss B. listed our "readings" on the board:

Bigge and Hunt - Chapter 1, 3, 4.
Bigge - Chapter 1, 2, 3, 4, 11.
Bigge - Chapter on Adolescence
Kneller - Educational Anthropology (All of the book)
Kneller - Educational Philosophy (Begin it)
Fullager - 1, 2, 3, 5, 6, 7, 8, 48.

Dr. M.L. Bigge, (The author of our learning theories book and Miss Bigge's brother), will be here November 22 and 23 to talk with us and have him answer our questions. Today is just a "clean up" day.

We discussed some of the students' experiences in presenting a class in junior high English. They enjoyed it and made interesting observations.

We watched a tape today with Miss X starting a new unit. The main point of the film was motivation.

1. Map - "Pick out where you think we got the following:"
    a. Alphabet
    b. Calendar
    c. First written code of laws
    d. First ideas for democracy
    e. Christian religion
    f. Gunpowder

After each article, she asked different students their opinions.

Then she read descriptive paragraphs on certain aspects of history:

1. Pioneers
2. Erie Canal
3. Huck Finn
4. California Gold Rush
5. General Lee

She used only subjects about which they had studied.

She showed pictures of authors and discussed their works and lives: (The works she talked about were mostly about children.)

a. Hemingway
b. Thoreau
c. Longfellow
d. Sandburg
e. Harris
f. Robert Frost
g. Poe

Next she read lists of five words which were related to one topic:

1. Explorers
2. People in New England states
3. Daily life in Colonial Days
4. Works that helped to begin our country
5. Indian tribes
6. Pioneer time

We skipped a few minutes of the tape. In the next part she read paragraphs which might fit certain pictures placed on the bulletin board.

After about 20 minutes of the tape, we stopped and discussed.

On the following pages will be discussions on tapes seen in class. Instead of saying "the students liked the part where" or "the students didn't like it when ..." I will list the "likes" and "dislikes."

1. = a good point or when the students showed approval.
2. = usually shows the students' disapproval or criticism.

1. a. Some students defended her approach.
   b. The class could remember certain little points which might motiviate them to study this certain topic.
   c. Some students were motivated in our class!!
   d. If the students knew something about these subjects, it was probably a good system for starting a new unit.
   e. No, she wasn't too directive.
   f. Maybe the students in the film weren't so critical (as we were) because they knew they were supposed to be looking for ideas.
   g. Maybe she was doing her own top "power of motivation!"
   h. She had shown her enthusiasm by her preparation and interest and thought in the planning for the class.

2. a. Students (in this class) weren't really "impressed" with this presentation.
   b. She wasn't very exciting herself.
   c. There were too many topics and the pupils couldn't decide or remember all these things "for two days" afterwards.
   d. Too much planning and reading on her part. (Too structured.)
   e. Students had no chance to talk or ask questions at the end of each part.
   f. Maybe she could have given her own opinions or could have had the students talk more. She shouldn't have read so much!

(The object of the class was to give them many ideas so each student could find one topic to extend in the next unit.)

It was hard for us "to throw in" all of our ideas into our own stimulating discussion. Many students talked!!

Our class voted on her enthusiasm — 1/3 said she was enthusiastic, a few less said she wasn't, and the rest couldn't decide!!

We'll have a new tape for tomorrow. We've had enough of this one!!

Wednesday, November 10

9:30 Group Discussion
(Seminar)

The students really liked Mr. A.'s talk and want him back again, maybe tomorrow.

Dr. S. talked about grades. Our grades will tend to be abnormally high. It won't necessarily be competitive.

1. Parents just don't always understand:
   a. Grading.
   b. Teaching methods, etc.
   c. It is a problem if the child is very brilliant and he doesn't do work according to his capacity.

2. Grading:
   a. Many different methods.
   b. Maybe we should give 2 grades.
   c. Written reports.
   d. Conferences with parents concerning the child's progress.
   e. Grading was not done at first: until motivation was going downhill, and so grades came as "an artificial motivational device." (The students in this class disagreed!)

3. Motivation:
   a. Home environment - very important.
   b. Grades are important. (But maybe a little overdone.)

4. Problems of teachers:
   a. We'll be biased
   b. Parents will wonder if we have graded the tests, etc., correctly.
   c. Grading and Discipline
      1. Two of the biggest problems.
      2. But they'll take care of themselves if you're an effective teacher. (Hope so!!)

5. Our readings:
   a. Dr. Bigge's visit will facilitate our readings as he is a consultant.
   b. Maybe we should read some besides the regular "assignments."
   c. We're having difficulty in understanding some of the learning theories. Maybe we could try for more concrete meanings.
   d. We wish that they would talk about one theory at a time - we get confused when they compare so many theories together.

The discussion became a little out of hand — we were supposed to talk without raising our hands. We did!!

Carl asked Miss B. to explain the division of junior high students:

1. Three groups (1 Math and 2 Science)
    a. According to IQ
    b. Classes in the afternoon.
    c. According to independence of study habits.
    d. (The "upper group" is ever increasing — but that's good!)

Junior high students in the better classes wanted to be graded stiffer and wanted to do the hardest things.

We sent out a "hunter" to find Mr. A. and see if we would discuss his teaching with us. He came.

1. What is your grading system?
    a. Take into account how well the student does perform according to Mr. A.'s opinion of his potential or how well he could perform.
    b. (Most of them do that O.K.)
    c. Students are curious about grades. Grades are necessary.

2. There is constant "pushing" and motivation to work better and faster.

3. There is some (20-30 mintues) outside work each day.
    a. List of assignments for 9 weeks — 45 to 50 assignments.
    b. Slow student is expected to do less. Usually won't get an A (because of the way it looks on his transcript).

4. How do you determine the student's potential?
    a. Teacher's observation and judgement come first!!
    b. IQ hardly affects his grade or not at all.

5. Encourage or discourage students by "You're doing very well," "OK," "Could be better," "Need improvement!"

6. Class size makes only a little difference.
    a. Mr. A. usually gives a very few lectures.
        1. First day of class.
        2. Lessons on formal proof.

7. Who decides when to go on to the next assignment?
    a. The student and the teacher. Too bad it's always a "day late" work done on Monday night can only be checked over with the student on Wednesday.

8. Mr. A. tries to improve on his method constantly.

It was nice having him here.

Comment: "Dr. S. interrupted a little bit and didn't give me a chance to finish what I was going to say."

Comment: "I was completely bored all the way through the film. She didn't stimulate me in any way. Sure am glad we have a new tape for tomorrow."

Comments: "I was bored stiff in my group discussion last week. I hope this week's will be more interesting and that the 'director' won't keep "yaking" about nothing." "Sometimes I feel like I'm just wasting my time in the group discussions. I would rather be over at Roosevelt observing or doing something else instead of wasting my time there." "Could we see a list of grades made on the NTE we can compare where we stand with other members in our class and in the other classes."

The tape for today was Mr. A. in a sophomore geometry class. It showed his "technique" of teaching — all individual, not group. We were encouraged to stop the film and ask questions.

Mr. A. walked through the class and helped individual students and explained their questions. Wouldn't his talking bother other students in the class? (Maybe we could just hear him so well because he was carrying the microphone with him.)

He repeatedly used — "Suppose we did it this way ......" The students talked a little among themselves. Maybe they are just waiting in the chairs figuring ways to get him to help them.(?)

We saw this film for about 12 minutes. He kept asking questions — "How would we do it if.....?" and "What about this.....?" — Good.

Carl F. "was volunteered" to lead the discussion on today's film.

1. a. Good way of teaching because you can give individual help.
   b. They are motivated individually.
   c. He has patience enough to take time to work with all of them.
   d. When several students have similar problems (previous observers said) he did use the group teaching — by explaining the new problem on the board.

2. a. It was indirect at times. Does individual teaching really result in success?
   b. He should have been more direct and personal when he talked to the individuals.
   c. Maybe he told them too many answers.

The students in that class work at their own speed and take tests when they think they're ready to "advance" to the next section.

We decided that this method works for some and not for others. Mr. A. gives them a list of "goals" or "problems" for them to do in a period of time — then they are graded.

a. By their own ability and potential capability.
b. By their accuracy.
c. By their speed.
d. According to others too, etc.

1. Maybe we are beginning to be able to identify certain people's actions.
2. We feel that maybe each teacher uses one big "intermingled configuration" of the theories.

Dr. S. left, but we continued the discussion ourselves.

Can we be indirect or direct every time? No, it depends on the situation. We should use aspects of different theories, but direct the teaching to one theory. Find the most successful method for us!

Our theories are being modified, either stronger or weaker. (Some are understanding more and some are becoming more confused.) We are beginning to learn some of the "whys" of teaching.

Miss B. came in and explained (as requested) her theories of teaching — she changes and is always looking for something new. Take a little bit from several theories.

Children can take on so much responsibility! It surprises me.

How can we or should we divide the categories (10) in the Bigge book into two big parts? We should have good background because we'll have an idea of the ways people think and we'll have seen it carried through.

We want concrete details of the main theories. (Listed maybe). How shall we do it?

1. Discuss one theory at a time as a whole class!
2. Talk about the theory, use examples.

Comments: "I like the tapes we're using now and we are really observing critically and learning a lot." "This was a long and interesting group discussion this morning. Maybe we could have used the extra time (when Dr. S. left) to discuss things by ourselves."

Thursday, November 11.

Dr. S. wrote on the board the 9,760 seniors' norm scores from the NTE taken December, 1964 and March, 1965. Our test was October 2, soon after school started.

NORMS

Professional Education	General	Weighted Total Education
75th percentile 260	406	661
50th percentile 238 (Mean)	371	609 (Average)
25th percentile 211	336	552

The average of this class was 609.99. The class did best by far in General Education! Total of the Professional Education score was 219 or about 30% tile.

General Education included science, math, social science, expression, etc. In this section, we had an average of 387 while the mean score was 371. It was in the 63 or 64% tile - the weighted total for this group.

The members of this class have a 2.3 GPA (Grade Point Average) or better; we'll have a good chance to go on and do well and become teachers.
The film today (video-tape) was of Mr. T. showing four things in a seventh grade Spanish Class.

1. Mr. T. had a girl get in front of the class and lead a song (twice) which they had already learned.

2. He used a felt board with figures of "relatives" in a family.
    a. He had a boy point out some of the members of the family.
    b. The class repeated the names.
    c. A girl removed the people from the board as she talked about them.

3. A picture of the family eating -
    a. He read a "story" of their actions.
    b. Three students acted out the "story" — very well done!

4. More about breakfast:
    a. Another feltboard with "articles" of food for breakfast.
    b. They repeated — "Please pass me the eggs, ...etc."

Jo Ann H. led the discussion.

1. a. It was good to have the students tell the girl to take the figures from the feltboard.
    b. Lack of bashfullness — members of the class all at ease.
    c. All knew the lesson well and were interested.
    d. They seemed so advanced — maybe it was because most of the lesson was oral.
    e. This is stimulus-response!! (?)
    f. Good associations.
    g. Not too directive.
    h. But the idea is to get them to respond spontaneously.
    i. Encouraged and praised.
    j. Even used subjunctive (in Spanish).
    k. Excellent use of visual aids!
    l. The students are getting "involved" instead of just listening.

2. a. He never did give them time to think — "Hurry up, rapidly, and quickly!"

Dr. S. explained his philosophical point of view that Mr. T. was a pragmatic teacher. Then he asked foreign language majors if this learning was a complex learning process. We think that memorizing is an important part, expecially at the beginning, then we go to more of an "insight" and thinking process.

Maybe we build up a series of S-R patterns until we get an "insight." We keep building bonds until we gain something.

What kind of a tape is this anyway???? What is foreign language learning????

The discussion took in several people and got "deeper and deeper!!!" We need more philosophical readings! Is this S-R, Field Theory, giving concepts, or insights or what??

Comments: "The discussion was intellectually stimulating!!" "I'd like to see a 'hard and fast' S-R man here." I'd like for him to speak with us." "What were the highest and lowest scores in our class in the NTE?" "Dr. S. didn't answer my question. He avoided it, but I'll ask it again."

Friday, November 12.

We discussed (in our friendly circle) how many times we have observed our case study. The "big" junior high party is tonight. Many of us are going.

We waited for Mr. B. to talk with us concerning our pre-enrollment and plans for the coming semester. (I'm not in this plan.) B. didn't come.

Some students are developing a bad habit of speaking (almost out loud) while Dr. S., Miss B., or other students are talking to the groups. It is very annoying!

We saw another tape of Mr. T. in Spanish (seventh grade.) This time he gave them math problems in Spanish, and they wrote them on the board and repeated their work out loud.

He used pictures showing the 12 months, and the students repeated a poem about the pictures (previously learned.)

The next part was an advanced ninth grade group. After the flag salute, he explained the procedures for the day.

A "World" was on the feltboard and a girl told all she knew about it. Mr. T. then compared the size of the earth with the sun. Still using the feltboard, he talked about "La America del Sur." A boy said several sentences about the countries and their capitals.

Next Mr. T. let them compare the sizes of the sun, the earth, and the continent. "El sol es mas grade que el mundo."

Mr. T. never passed up a chance to notice something amusing - Good!!

1. a. He praised them highly.
   b. Good humor.
   c. We noticed that he can be very relaxed (they were more advanced.)
   d. Interest was held by students.
   e. He used geography, science, etc. Education in many fields!!
   f. He introduced new vocabulary and even grammar. (Maybe they learned it unconsciously.)

We are still wondering if his teaching is S-R or what. Dr. S. has talked with Dean B. and Dean B. commented about a "teaching machine" which would show definite S-R. A Field Theory is different.

We should see what the teacher's problem is, what is his subject, and what are his methods. Mr. T. provided Field Theory at first and then modified it for the rest of the period. His position varies.

Maybe Dr. N. could talk to us about S-R or on programmed learning. The period went overtime.

November 15-December 1.

The period between November 15 and December 1 was spent in a variety of activities, most of which have been adequately described already and of which further description would be repetitious. For example, a video-tape of a Spanish class was viewed and discussed on November 15, and a high school English class was viewed and discussed on November 16. On November 17, however, a writer who wanted to do a feature story on the class asked permission to meet alone with the class to discuss the reactions of the students. It was felt that the instructors should not be present for fear that their presence would inhibit the discussion. Permission was given and the following account has been recorded directly from the diary:

Wednesday, November 17.

Mr. Bob E. spoke to us about an NEA Journal article from the October 1965 issue - "The Beginning Teacher — Education Courses" (Opinion differs on their value).

Mr. E. explained his reasons for discussing this article.

1. He will write an article concerning this experiment.
2. He wants our opinions of the class.
3. Assigned readings: (Our comments)
    a. We have 6 books.
    b. Specific Assignments - with no certain completion date.
    c. Do we have time to read it? (Some do, but others don't.)
    d. Do the TV Tapes let us use our reading knowledge? Yes.
    e. Or do we read it - because we have to? We read the books because we realize we should apply it to our teaching, and because it helps us to observe. Although some feel it is a burden because of the extra time it requires.

4. TV - Do we feel the tapes are letting us get involved? Yes.
    a. We feel almost as if we were in the teacher's place. We're really thinking about becoming teachers, and we're gaining an interest in education and teaching.

5. General opinion of the course:
    a. We don't feel as if we're just trying to "get through" in this education course.
    b. Some (in other classes mostly) are just taking education courses to have an "insurance policy" in teaching. It would be helpful if they were in this class because they could really see if teaching is what they want or not.
    c. This kind of course shows education "in reality", but we could have even more reality in our observations, i.e. be in contact with a "lower" class of students instead of the Roosevelt High School group, or a group mainly composed of "better students".
    d. It would be good if we could see differences in students who plan to continue their education and in those who don't care or can't go on in school.

6. Seminars:
    a. Description - No back rows!!!
    b. Different group meetings with different "group leaders" at different times in different places and discussing different topics.
    c. We ask questions. (Seminars revolve around our questions.)
    d. Questions concerning readings, TV, and teaching, etc.
    e. This helps us know what to look for on the TV tapes and in the classes which we are observing.
    f. The results of this class should show our enthusiasm in our student teaching and in real teaching.

7. Student teaching was discussed:
    a. How will supervising teachers react? (We're a little "scared" of our new teaching situation.)

   b. We want to work hard and get plenty of practice when we student teach.
   c. We hope our supervising teachers will be tolerant of our teaching methods, but yet that they will give us constructive criticism.

8. Beginning teachers:
   a. Some noticed all the "sad experiences" of many beginning teachers in the NEA Journal. (This scares some of us.)

9. Discussion of NEA article on teacher education courses:
   a. Our friends in the other classes "agree" with this.
   b. They say the teachers here don't care, they don't do anything new or interesting in the classes, no enthusiasm, etc. Therefore students go into the courses with a "bad attitude", and the course itself doesn't change their attitude.
   c. The newness and "experimentalism" of this class is still invigorating.

The students responded well - had new ideas, etc. They definitely weren't "bashful" in discussing with Mr. E.

10. Students here hope that others in teacher education after us can do similar activities as we have done in this class.
    a. Watching TV tapes of teacher (and some analyzing of tapes).
    b. Our own few minutes of "role playing."
    c. Discussing as much as possible.

Even those who hadn't spoken got a chance to speak and voice their opinions. Mr. E. was glad to see a group of teacher candidates who "thought they were better than the average." (Do we think that we're too "hot", though??)

Miss B. read the names of our case studies to correct her list. It was cold and some of the students weren't there. But there has been very good attendance.

She read parts of "typical case studies" which told about a child's interests, grades, clubs, money, travel, personality, fun, activities, collections, jobs, beliefs, and ideas on life, etc. After several "encounters" with the student, we should write up our own suggestions and summarize our opinions about this young person.

The overall general opinion of the class was that this class was superb for teaching practices and would-be teachers. It received a "high rating" from the students.

A guest speaker was provided for November 18. His subject was programmed learning. Since the discussion was not completed to the satisfaction of the students, the speaker was invited back on November 19.

Much discussion during the entire semester has centered around the two contemporary learning theories of Stimulus-Response and the Gestalt or Field Theories. The students were having considerable difficulty with these theories, and Dr. Morris Bigge, the author of the book used by the class, was invited to lecture to the students on November 22 and 23. Dr. Bigge lectured for two hours and then met with each of the three experimental classes to answer their questions. Each of his lectures was video-taped as were the small-group sessions which followed the lectures. November 29, 30, and December 1 were spent discussing these video-tapes of Dr. Bigge.

December 2-January 13.

The period from December 2 through the end of the semester continued the established pattern and used observations of video-tapes, live observations in the classroom, small group discussions, debates, and guest lecturers. The recorder's diary has been used to describe four days which seem to be typical of this period.

Thursday, December 2.

Dr. S. led the discussion of Jean T.'s question: "Can some philosophies mix with certain teaching theories?" (Pragmatism with Cognitive Theory, etc.)

1. They may overlap and we could and probably do mix them. (Words such as "logical positivism" and "relativism" were discussed.)
2. Is philosophy even important?
    a. Yes, we do have general ideas, but philosophy helps us decide upon a teaching theory.
    b. Maybe we don't have to accept a philosophy — we can see enough by observing.
3. Should we use the same philosophy for teaching as we do for "regular living?" How are teachers in and out of the classroom?

a. Some play a "dual role." (Strict and directive in class — Authoritarian — but nice and friendly and democratic outside of class.)
b. It probably won't be that a teacher is democratic in class and authoritarian outside of class. (Maybe the divisions should be changed to Relativist and Scholastic Realist, etc.)
c. The community influences the kind of teaching to a certain extent. (Parents are afraid that children aren't learning in a democratic classroom.)

4. Can you shift "in and out" of a philosophy constantly? Does teacher education modify your actions in the class? If not, what does cause you to modify your teaching? Are we being influenced about teaching theories by this class? YES!
5. What is philosophy? A system that attempts to answer — "What is a man's place in the cosmos?" Why have philosophies?
   a. To answer specific questions.
   b. Authoritarianism is one philosophy.
   c. Science, experimentation and observation tend to go away from old authoritarian beliefs — Experimentalistic or Relativistic.

I believe that most of us haven't read all of the philosophy book. Most of the students were reluctant to discuss. (It's foggy and dreary outside!!)

Maybe our problem is that we learn only from teaching and not by someone telling us how to teach. They should demonstrate the best that is known about teaching. The teacher (of each course) should base his teaching on his philosophy and stick to it.

Aperception - Perception of relating what is now presented to previously acquired knowledge.

6. In some classes you can only be democratic to a certain extent — foreign language, math. (Let the children decide in what direction to go.) This statement stimulated several students into argumentation!
   a. We seem to know about the needs of the students.
   b. Jean says that some courses need a definite plan.
   c. Miss B. told us that she thought a lot about the actions of the students, but that she doesn't lead everything.
   d. The teacher must give direction (Miss B. works with her students constantly. She knows what they're doing at all times.)
   e. We need to have an ultimate objective—a direction.
   f. How does the teacher find what the students want to learn???

Foreign language was the topic. Do we have to learn certain things in a definite order — to learn to speak the language?!! Confusion reigned! Foreign language students want to learn to communicate with each other.

Philosophy — existentialism, pragmatism, realism, idealism, etc. The object is for us to be able to compare the theories and to find what is best.

This class isn't authoritarian, but it is being directed in some way. The goals can be reached, but some are afraid - this class is so different and we may fall back to the "traditional" way.

This class isn't really trying to sell a pattern of techniques, but it just wants to give direction!!

If you have direction and put meaning into your teaching, you have better chances of not becoming neurotic!!! SR would be the easiest!!

Dr. S. gave each of us Principles of Teaching, a handbook, written by Paul J. Kruse of K.S.T.C.. Miss B. checked times for observation and participation at Roosevelt High School.

Comments: "Dr. Bigge was very enlightening. Are we too entangled in the teaching because the class is being taught in the manner that the class is advocating? I think this is one basic difference between this class and the conventional manner in which the education courses are generally taught. I also believe that learning theories and methods of teaching are more important than philosophy in this course and that we will develop our own philosophy of education, couched in our own terms and vocabulary, which will be more meaningful to us."

Tuesday, December 7.

Comments: "Dr. Bigge was very enlightening. Are we too entangled in the theory of SR and CF and losing the principles of the course? Wouldn't it be better if we put more emphasis on the practical points as expressed in Kruse?"

We saw Mr. C.'s tape from Roosevelt High School. Had some trouble with the TV tapes. He let the students choose a group to participate during the speech time in CORE.

One person read a paragraph about water evaporation and three other girls gave their interpretations of the paragraph. All this was taped.

They played back the tape so that each could hear her voice. They helped Mr. C. outline "the facts" of the paragraph. On the playback, they "scored" themselves on their presentations.

Mr. C. discussed the value of this experiment and compared it with a similar one from last week. The students had improved their ability to repeat what they heard.

What kind of teaching was this?? We need to use this method very often. Someone noticed that the students performed better on TV than they did in the actual classroom.

The purpose of this method of teaching:

1. To learn to be a good listener.
2. Help them listen to facts.
3. Organize material mentally.
4. Help them in speaking.
5. Early participating in speech work.

Dr. S. suggested that we have buzz sessions to determine our greatest needs and to discuss possible solutions to these needs.

1. Need help in making unit plans and "long range" plans for our particular courses. General concepts.
   Remedy: take classtime to work at the library.

2. We wanted to get into other theories, i.e. mental discipline. Maybe we need other speakers from other schools in Emporia. Maybe we can be both SR and/or CF and/or something else. We don't want to label ourselves.

3. We need to know more about discipline. We can't always just "get to know" potential discipline problem children. It might be almost impossible to motivate some people. It's such a personal thing.
   Remedy: More readings!

Other suggestions were:

1. We need more self confidence, more knowledge of ethics.
2. Bring in more speakers; a first year teacher, someone who has just done his student teaching, and also a supervising teacher.

(Charles T. is going to talk to the Public Relations of Teachers class and we'll try to have an "exchange" with them. They can tell us about their student teaching experiences.)

Comments:

"We should have had another chance to change our methods and improve our teaching after the first role playing experience."

"I wish that our discussion had more content and that we were really learning something."

"Do we have a final and if so, over what?"

Thursday, December 9.

We were given preliminary request cards for student teaching assignments at the secondary level. This will give us more of a chance to choose locations for student teaching.

Tomorrow we'll have a guest speaker — Mr. G. from the Social Science Department. He is doing research work with simulation — a teaching technique! (An effort to get at a real situation.) We are to read Mr. G.'s handbook before he comes. Will this theory have many possibilities for us?

Miss B. read a composite of our wants and needs which we prepared Tuesday.

1. Discipline - see some case studies and discuss.
2. Mental discipline - as a theory — some want to know more about it. What are the faculties of the mind?

3. Look into Essentialism by Bogley. Philosophy. The hand-out sheet tells some about this. (We can use this for the small group discussions.)

4. Wish we could have another chance at teaching. It would have been better to have taught, been criticized, and then we could have corrected our mistakes by teaching soon afterwards with a somewhat different method.

5. We'd like to know about curriculum libraries, techniques, motivation — as a class and individually.
    a. Maybe discipline problems can be solved by using common sense and by improving human relations.
    b. We want to know some possible discipline situations which might come up, and discuss them.

6. The students don't believe that the NTE will be a good measure of our learning experiences.
    a. But we won't know about certain historical events in education. Are these even important? Would they change our approach if we knew them? (Probably not.)
    b. This experimental program just wants us to be directed, and they hope we will learn concepts of teaching which weren't "hammered in" and that we will remember the theory longer!!
    c. Should we know about The Latin Grammar Group?
    d. We are only expected to present a different type of behavior in the classroom. (The discussion wandered away as usual — back to discipline!)

One main problem in discipline is obscenity. What do you do? You need to develop a curriculum that is interesting and challenging. Work with them individually!

Maybe we will see a 1940 movie called Learning to Understand Children.

Comment: "I think I enjoy the discussions more than the tape, although the tapes seem important."

Monday, December 13.

Comments about Friday's discussion on simulation: "I plan to use this in my teaching. Mr. G. presented it very well." "I have used this in class and it's really great. We did learn a lot too." "I thought that Mr. G. presented the program truthfully."

Miss B. discussed case studies:

1. Be careful not to be too "buddy-buddy," especially with the girls.
2. Visit their homes.
3. Read their school records.
4. Finish it up by the end of the semester.

Dr. S. introduced the old film called — "Learning to Understand Children" — Parts I and II.

The film gave a short introduction to education and began telling the story about Ada Adams, a ninth grader. Part I examined the problem, and Part II gave the remedy to the problem.

Ada Adams was bashful, quiet, intelligent, unhealthy, and poor. Her home conditions seemed to be the main problem. What will the teacher do?

a. Visit the home.
b. Talk with her parents.
c. Talk to students.
d. Find an interest to expand.

We really enjoyed this break of routine — and now we're excited to come back tomorrow same time, same place, for the next exciting episode in the life of Ada Adams. (As the world turned — we were dismissed!)

3. Phase II: Participation

During Phase II of the experimental program, the emphasis was on participation in the campus laboratory school. Two students had dropped from the experimental program and the remaining sixty-six were assigned in the laboratory school to a class in their major teaching field. The students met these classes daily for the semester. Efforts were made to assign no more than two students from the experimental program to the same high school class. It was necessary, however to assign three students to a class in two cases and one class was assigned four students.

The supervising teachers of the high school classes were informed of the nature of the study by the project director and the project staff in a meeting immediately prior to the assignment of the students. In this meeting the supervisors were given a detailed explanation of the first phase of the project in which observation was stressed. They were told that during the second phase participation should be stressed and that they should treat these second semester students as if they were student teachers insofar as possible. It was pointed out that these students had not had, nor would they receive, a formal methods course and that it was the purpose of this course, or phase, to integrate methodological theory with application. The supervising teachers were asked to demonstrate instructional theory and methodology, discuss it with the students, and then make provision as soon as possible for the students to practice the technique.

It was suggested that the students be allowed to assist the supervisor in every possible way and to assume increasing responsibility as rapidly as possible. It was strongly suggested that each student be given the responsibility for planning and executing a major instructional unit sometime during the semester.

In addition to attending the high school class daily, the students of the experimental program met with the project staff for seminars over the selected readings for one hour twice a week. The project staff members visited the students of the experimental program in the high school classes periodically to discuss their experiences both with the students and with the supervising teachers.

4. Phase III: Student Teaching

The student teaching phase of the experimental program was identical to that of the control group. The students of both the experimental program and the control group were assigned by the Director of Student Teaching to one of the regular student teaching stations. With few exceptions these stations were located in the cities of Emporia, Kansas City, Topeka, Hutchinson, Wichita, and Chanute. No more than one student was assigned to a supervising teacher, and efforts were made to include some work in the student's minor field in the assignment.

CHAPTER III

ANALYSIS OF DATA: T-TESTS, ANALYSIS OF VARIANCE, AND RELIABILITY OF DIFFERENCE OF SCORES MADE BY THE EXPERIMENTAL AND CONTROL GROUPS

As described in Chapter I, complete data were obtained for 115 students of the original 140. Drop-outs, transfers, and changes of educational goals accounted for a loss of 23 students. Two were dropped from the study because of their failure to take the initial administration of the National Teachers Examination. Of the 115 students remaining, 53 were in the control group. Both the experimental and control groups were selected randomly from students who met the following criteria: (1) who had a cumulative grade point average of not less than 2.3 on a 4.0 scale, (2) who were first semester juniors who had taken no education courses previously, and (3) who had agreed to participate in either the experimental or the control group as chosen.

After the experimental and the control groups had been selected, an analysis of their cumulative grade point average was made to determine whether significant differences existed. The mean cumulative grade point average of the experimental group was 2.95 on a 4.0 scale and the mean for the control group was 2.86, a difference of 0.09. A t-ratio was computed on the difference and found to be .0235. Since the t-ratio did not approach significance, it was concluded that the random selection method had been adequate.

A further effort was made to determine the heterogeneity of the two groups through an analysis of the results of the initial administration of the National Teachers Examination. It was found that the two groups were not significantly different as evidenced by the t-ratio obtained of 0.640. The t-ratio was computed on the difference between the total NTE scores of the experimental and the control groups. Table 4 has presented the comparison of the initial National Teachers Examination results for all students for whom complete data were collected.

Table 4. A comparison of the means, t-ratios, and significance of difference of experimental and control groups on the initial National Teacher Examination, Common Examinations.

Common Examinations	Mean Score Experimental	Control	t-ratio	p
General Education	390.21	282.85	.910	n.s.[a]
Professional Education	221.88	224.33	.463	n.s.
Total Common Examinations	612.09	607.19	.387	n.s.

[a] Not Significant

As indicated in Table 4, there were no significant differences between the experimental and the control groups on any part of the Common Examinations section of the National Teachers Examination. Since there were no significant differences between the experimental and the control groups in cumulative grade point average or on the Common Examinations of the NTE, the investigators concluded that both groups were from the same population and that the assumption of randomness could be defended.

All data presented in this chapter were obtained from three sources: (1) independent observers who made (to each student of both the experimental and the control groups) three visits during which time the observer completed a Classroom

Observation Record and also conducted a 20-minute session of interaction analysis (the identity of the student's assignment to either the experimental or control group was concealed from the observer to eliminate possible bias); (2) student teaching grades given by public school supervising teachers; and (3) pre- and post-administrations of the Common Examinations section of the National Teacher Examination.

Data relevant to the Classroom Observation Record, student teaching grades, and National Teachers Examination have been presented in tables structured to identify the group, mean score, t-ratio, and the level of significance. The data relevant to the system of interaction analysis have been treated statistically by an analysis of variance and presented in tables structured to identify the group, mean percentage of time, F-value, and the level of probability or significance.

For the purposes of this study, it was determined that a t-ratio or F-test must equal or exceed the .05 level to be considered significant. Probabilities equalling or exceeding the .01 level have been considered very significant, and scores showing significance at or beyond the .001 level have been considered highly significant.

A. The Classroom Observation Record

As was described in Chapter I, the Classroom Observation Record was an outgrowth of the Teachers Characteristics Study conducted at the University of Texas and supported by the Council for Basic Education. The Classroom Observation Record required that the observer make judgments on four dimensions of pupil behavior and eighteen dimensions of teacher behavior. The observer's judgments were recorded on a seven-point scale. To avoid problems of definition and semantic difficulties, the observers limited the criteria upon which judgments were made to those descriptive statements of the specific behavior contained in the Glossary (see page 39 of Chapter I). Inter-observer correlation was found to be .90.

Table 5 has presented the results of a test of the significance of difference between the mean pupil behavior ratings of both the experimental and the control groups on the Classroom Observation Record.

Table 5. A comparison of the means of the pupil behavior ratings of the experimental and the control groups on the classroom observation records[a]

Pupil Behavior	Mean Score Experimental	Mean Score Control	t-ratios	p
Apathetic-Alert c	5.487	5.047	3.191	.005
Obstructive-Responsible	5.646	5.441	1.623	n.s.[b]
Uncertain-Confident	5.249	4.875	2.912	.005
Dependent-Initiating	4.944	4.466	3.446	.001
Total Pupil Behavior	21.326	19.830	3.364	.001

[a] This table represents the behavior of the pupils taught by the students of the experimental and the control groups during their period of student teaching.

[b] Not significant

[c] Mean scores below 4.0 describe the pupil behavior listed at the left whereas scores above 4.0 describe the behavior at the right. A mean score of 4.0 indicates a neutral position.

As shown in Table 5, the six independent observers, having completed three Classroom Observation Records on each of the students in the project, rated the pupils taught by students of the experimental group as being more alert, confident, and initiating than were the pupils taught by students of the control group. These differences were significant beyond the .01 level. Although pupils taught by the experimental students were judged to be more responsible, the difference was not statistically significant. The total behavior of the pupils taught by the experimental group was judged to be more desirable by the observers; the difference was significant at the .001 level.

A comparison of the means of the teacher behavior ratings on the Classroom Observation Record has been presented in Table 6.

The bipolar rating scale used by the observers ranged a continuum from one to seven. A rating from one to three represented a description of the behavioral dimension listed at the left of Table 6 while a rating of five to seven represented the behavior dimension at the right. A rating of four represented a neutral assessment of the dimension. On each of the dimensions of teacher behavior, the observers rated the experimental students higher toward the dimension listed to the right. For example, the experimental students were rated as being more fair, as opposed to partial; more democratic, responsive, understanding, kindly, stimulating, original, alert, attractive, responsible, steady, poised, confident, systematic, adaptable, optimistic, integrated, and broad. Only two of the dimensions were found to be very significant at the .005 level.

Table 6. A comparison of the means of the Teacher Behavior Ratings of The Experimental and Control Groups on the Classroom Observation Record

Teacher Behavior	Mean Score		t - Ratio	P
	Experimental	Control		
Partial - Fair	6.062	5.747	3.531	.001
Autocratic - Democratic	5.266	4.598	4.667	.001
Aloof - Responsive	5.726	5.296	3.761	.001
Restricted - Understanding	5.676	5.290	3.094	.005
Harsh - Kindly	5.870	5.481	3.257	.001
Dull - Stimulating	5.285	4.562	4.761	.001
Stereotyped - Original	4.490	3.870a	4.037	.001
Apathetic - Alert	5.809	5.288	4.545	.001
Unimpressive - Attractive	6.163	5.693	4.618	.001
Evading - Responsible	5.879	5.310	4.479	.001
Erratic - Steady	6.081	5.531	5.443	.001
Excitable - Poised	5.914	5.482	4.053	.001
Uncertain - Confident	5.864	5.282	4.466	.001
Disorganized - Systematic	5.821	5.404	3.421	.001
Inflexible - Adaptable	5.521	5.059	3.588	.001
Pessimistic - Optimistic	5.825	5.471	3.308	.001
Immature - Integrated	5.536	5.107	3.478	.001
Narrow - Broad	4.997	4.675	2.766	.005
Total Teacher Behavior	101.777	93.145	5.393	.001

a. Mean scores below 4.0 describe the teacher behavior listed to the left

On the total teacher behavior, the experimental group received a mean score of 101.777 as compared to a mean score of 93.145 for the control group. This difference was significant at beyond the .001 level. A summary comparison of the means of the pupil behavior ratings and the teacher behavior ratings on the Classroom Observation Record has been presented in Table 7.

Table 7. A summary comparison of the means of the pupil behavior ratings and the teacher behavior ratings on the Classroom Observation Record.

Behaviors	Mean Score Experimental	 Control	t-ratio	p
Total Pupil Behavior	21.326	19.830	3.364	.001
Total Teacher Behavior	101.77	93.145	5.393	.001
Total For The Instrument	123.104	112.975	5.330	.001

Table 7 shows that the mean total score for the experimental students for the Classroom Observation Record was 123.104; the mean score for the control group was 112.975. The t-ratio obtained on the difference of means was 5.33 and was significant at beyond the .001 level.

B. Interaction Analysis

As was described in detail in Chapter I, a system of interaction analysis was used which classified verbal teaching behavior into one of sixteen categories. The categories were the following: (1) Accepts Student Feeling, (2) Praise And

Reward, (3) Accepts And Uses Student's Ideas, (4) Teacher Asks Questions, (5) Teacher Answers Student's Questions, (6) Lecture, (7) Corrective Feedback, (8) Requests And Commands, (9) Criticism, (10 and 11) Student Talk, Response And Initiated, (12) Student's Questions, (13) Directed Practice, (14) Contemplation, (15) Teacher Demonstration, and (16) Confusion And Irrelevant Behavior.

As in the Flanders System, each trained observer wrote the category number of the interaction he had just observed every three seconds or every time the category changed. The observer, writing approximately twenty numbers per minute, recorded the numbers sequentially in a column. The sequence of numbers thus acquired was recorded in pairs in a 16-row by 16-column table or matrix according to the method developed by Flanders.[1] Composite matrices representing three twenty-minute observations for each student were prepared for both the experimental and the control groups.

Originally in the design of the study, it was decided that Student Talk-Response (category 10) would be classified apart from Student Talk-Emitted (Category 11). During the observer training session, however, the decision was made to combine these two categories because the observers were unable to distinquish Category 10 from Category 11 with high reliability.

From the composite matrices it was possible to determine the number of tallies and the percentage of time spent in each of the categories by the students of the experimental and the control groups. Table 8 has presented a comparison of the average number of tallies per student of the experimental and the control groups in each of the 16 categories of teacher behavior.

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[1] Flanders, Ned A., Teacher Influence, Pupil Attitudes, and Achievement, Cooperative Research Monograph No. 12, Washington, D.C.: U.S. Government Office, 1965.

Table 8. A comparison of the mean tallies per student per hour of observation in each of the sixteen categories of teacher behavior.

No.	Category	Mean Tallies Per Student Experimental	Mean Tallies Per Student Control	Difference
1	Feeling	5.3	7.7	2.4
2	Praise	10.7	9.0	1.7
3	Accepts	147.6	107.3	40.3
4	Asks Questions	95.0	78.7	16.3
5	Answers Questions	48.9	38.7	10.2
6	Lectures	286.2	274.0	12.2
7	Corrective Feedback	9.1	11.3	2.2
8	Directions	63.9	73.9	10.0
9	Criticizes	6.0	6.1	.1
10 and 11	Student Talk	255.7	232.9	24.8
12	Student Questions	39.4	33.1	6.3
13	Directed Practice	177.1	266.8	89.7
14	Silence and Contemplation	38.2	43.0	4.8
15	Demonstration	44.1	27.5	16.6
16	Confusion	10.5	10.7	.2

As has been shown in Table 8, there were observable differences in the mean tallies per student in a given category by the experimental and the control groups. For example, the experimental group had 147.6 tallies in Category 3, Accepting and Using the Ideas of Students, as compared to 107.3 for the control group, a difference of 40.3 tallies. The experimental group also spent more time asking questions and answering students' questions. The control group spent more time in directed practice, 266.8 tallies as compared to 177.1 for the experimental group.

Although the investigators had originally intended to make comparison only between the total experimental and the total control groups on the data collected through interaction analysis, the independent observers reported their impression that the specific category used by a given student was greatly influenced by that student's major teaching field. For example, a teacher of foreign language tended to use more requests and commands than would a teacher in one of the humanities, or that a foreign language teacher lectured more than did a teacher of the practical arts. In order to isolate the effect of the experimental program from the effect of the academic area, the experimental data were subjected to an analysis of variance. Table 9, page 105, has shown through the F-test the significance of the variation in the use of the sixteen categories of teaching behavior which was attributable to (1) the academic area taught, (2) the experimental and the control programs, and (3) the interaction between the academic area and the experimental treatment.

Table 9 has also shown that the academic areas as a source of variance were significant at the .01 level in Categories 2, 7, 8, 10 and 11, 13, and 15. Since the experimental program as a source of variance was significant at the .05 level only in Category 2, the evidence appeared conclusive that the differences in the use of categories between subject field areas outweighed or masked out the differences attributable to the experimental program.

Evidence that the experimental program was a significant factor in determining the use of specific categories was provided by an examination of the i/d ratio which was determined by dividing those categories which imply indirect teacher behavior, namely Category 1, Accepts Feeling; Category 2, Praise and Reward; and Category 3, Accepts and Uses Student's Ideas, by those categories which imply direct teacher behavior, namely Category 7, Corrective Feedback; Category 8, Requests and Commands; and Category 9, Criticism and Justification of Authority. An i/d ratio of 1.0 would indicate that for every indirect

Table 9. Analysis of variance of sixteen categories of teaching behavior attributable to academic areas, experimental program, and interaction of the two.

CATEGORY							
No.	Description	Source of Variation	Sum of Squares	d.f.	Mean Squares	F.	p.
1	Accepts Feeling	Academic Area (A)	67.6	4	16.9	.34	n.s.
		Exp. & Cont. (B)	18.2	1	18.2	.37	n.s.
		Interaction (AXB)	93.8	3	31.2	.64	n.s.
		Residual	5117.6	105	48.7		
		Total	5297.2	113	46.9		
2	Praise & Reward	Academic Area (A)	4405.0	4	1101.3	12.10	.01
		Exp. & Cont. (B)	406.8	1	406.8	4.47	.05
		Interaction (AXB)	2738.7	3	912.9	10.03	.01
		Residual	7752.9	105	73.8		
		Total	15303.4	113	135.4		
3	Accepts Ideas	Academic Area (A)	53659.7	4	13412.4	1.61	n.s.
		Exp. & Cont. (B)	9213.6	1	9213.6	1.11	n.s.
		Interaction (AXB)	26873.0	3	8957.5	1.08	n.s.
		Residual	910835.6	105	673.4		
		Total	1000571.9	113	8854.6		
4	Teacher Questions	Academic Area (A)	8092.5	4	2023.1	.67	n.s.
		Exp. & Cont. (B)	2381.2	1	2381.2	.81	n.s.
		Interaction (AXB)	8468.3	3	2822.8	.96	n.s.
		Residual	313768.1	105	2974.0		
		Total	332710.1	113	2059.4		

Table 9 (Con't)

5	Answers Questions	Academic Area (A)	5365.5	4	1341.4	.98	n.s.
		Exp. & Cont. (B)	1326.9	1	1326.9	.97	n.s.
		Interaction (AXB)	1514.3	3	504.7	.38	n.s.
		Residual	147017.8	105	1400.2		
		Total	155224.5	113	1373.7		
6	Lecture	Academic Area (A)	29239.8	4	7309.9	2.05	n.s.
		Exp. & Cont. (B)	8393.0	1	8393.0	.23	n.s.
		Interaction (AXB)	23280.5	3	7725.8	.22	n.s.
		Residual	3988655.0	105	37987.2		
		Total	4049568.3	113	35836.9		
7	Corrective Feedback	Academic Area (A)	1584.3	4	396.0	4.00	.01
		Exp. & Cont. (B)	231.4	1	231.4	2.34	n.s.
		Interaction (AXB)	340.5	3	113.5	1.15	n.s.
		Residual	10021.6	105	95.4		
		Total	12177.8	113	107.8		
8	Requests & Commands	Academic Area (A)	165890.9	4	41472.7	7.15	.01
		Exp. & Cont. (B)	13619.9	1	13619.9	2.34	n.s.
		Interaction (AXB)	14098.2	3	4699.4	.81	n.s.
		Residual	590329.5	105	5622.2		
		Total	783938.5	113	6937.5		
9	Criticism	Academic Area (A)	182.5	4	45.6	.40	n.s.
		Exp. & Cont. (B)	30.0	1	30.0	.31	n.s.
		Interaction (AXB)	297.3	3	99.1	.85	n.s.
		Residual	12216.6	105	116.4		
		Total	12726.4	113	112.6		

Table 9 (Con't)

10 & 11	Student Talk	Academic Area (A)	594911.6	4	148727.9	7.74	.01
		Exp. & Cont. (B)	5112.8	1	5112.8	.27	n.s.
		Interaction (AXB)	1925.7	3	641.9	.03	n.s.
		Residual	2058428.1	105	19604.1		
		Total	2660378.2	113	23543.2		
12	Student Questions	Academic Area (A)	2264.9	4	566.2	.72	n.s.
		Exp. & Cont. (B)	2528.0	1	2528.0	3.21	n.s.
		Interaction (AXB)	1836.2	3	612.0	.81	n.s.
		Residual	82374.9	105	784.5		
		Total	89004.0	113	787.7		
13	Directed Practice	Academic Area (A)	599038.1	4	149759.5	4.34	.01
		Exp. & Cont. (B)	39932.3	1	39932.3	1.16	n.s.
		Interaction (AXB)	14663.3	3	4887.7	.14	n.s.
		Residual	3714618.6	105	35377.3		
		Total	4368252.3	113	38657.1		
14	Contemplation	Academic Area (A)	6272.0	4	1568.0	1.29	n.s.
		Exp. & Cont. (B)	7013.3	1	7013.3	2.45	n.s.
		Interaction (AXB)	6256.8	3	2085.6	1.71	n.s.
		Residual	120184.3	105	1144.6		
		Total	139726.4	113	1236.5		
15	Teacher Demonstration	Academic Area (A)	60877.0	4	15219.2	10.91	.01
		Exp. & Cont. (B)	742.7	1	742.7	.53	n.s.
		Interaction (AXB)	152.5	3	508.0	.20	n.s.
		Residual	155317.6	105	1479.2		
		Total	217089.8	113	1921.2		

Table 9 (Con't)

16	Confusion	Academic Area (A)	826.3	4	206.5	.40	n.s.
		Exp. & Cont. (B)	61.2	1	61.2	.12	n.s.
		Interaction (AXB)	332.9	3	110.9	.22	n.s.
		Residual	53709.2	105	511.5		
		Total	54929.6	113	486.1		
i/d ratio $\frac{1,2,3}{7,8,9}$		Academic Area (A)	33.6	4	8.4	.62	n.s.
		Exp. & Cont. (B)	100.8	1	100.8	7.48	.01
		Interaction (AXB)	37.4	3	12.5	.92	n.s.
		Residual	1401.8	105	13.4		
		Total	1573.6	113	13.9		

teaching behavior, there was a direct teaching behavior. As indicated in Table 9, the i/d ratio was significant at the .01 level when the source of variance was the experimental program.

The implication that the experimental program was significantly responsible for the experimental student's choosing more indirect categories despite the fact that differences attributable to academic areas were great enough to mask-out much of that change led the investigators to analyze the data by academic areas. Consequently, all students in both the experimental and the control groups were classified into one of four academic divisions: (1) science and mathematics, (2) foreign language, (3) humanities, and (4) practical arts. Since no effort was made initially to select students proportionately from academic areas, the random selection method resulted in a disproportionate number in some cases as in shown in table 10.

Table 10. The number of students in the experimental and control groups by academic area.

Group	Science & Math 1	Foreign Language 2	Humanities 3	Practical Arts	Total
Exp.	15	8	24	14	61
Control	5	4	31	13	53
Total	20	12	55	27	114

The math and science area included mathematics, and biological and physical sciences. Foreign languages included majors in all languages except English. The humanities area included the social sciences, English, speech, and art whereas the practical arts consisted of men's and women's physical education, home economics, industrial arts, and business. It should be recognized that the samples are necessarily small and the academic areas are relatively broad and, as such, constitute a limitation of the study. Nevertheless, an analysis by academic fields revealed several definite patterns; Figures 8 through 11 present histograms of the average number of tallies per student in each of the four academic divisions and for the total groups. Categories 1, 2, and 3 have been combined to show indirect teacher behavior and Categories 7, 8, and 9 have been combined to show direct teacher behavior.

As was seen in Figures 8, 9, 10, and 11, the average number of tallies per category varied considerably between teachers in the four academic areas. For example, in Categories 1, 2, and 3, the indirect categories, the science and mathematics teachers in both the experimental and the control groups used very little indirect activity—only about 30 tallies per hour of observation—whereas the experimental students in the humanities had approximately 170 tallies per student. The average tallies per student in these categories for all experimental students were 163 as compared to 123 for the total control group.

It was further evident that the students in foreign language made more use of the direct activities than did the students of other academic areas. In Categories 7, 8, and 9, the experimental students had an average number of tallies of 154 compared to 53 for the experimental students in science and math and 79 for the total experimental group.

The student teachers in foreign language also made far more use of the student talk categories, Categories 10 and 11. Both the experimental and the control students in foreign language had approximately 390 mean tallies per student in student talk as compared to 170 in practical arts and 243 for the total group. The students in science and mathematics and in practical arts used (as could be expected) the most directed practice; they also used more teacher demonstration.

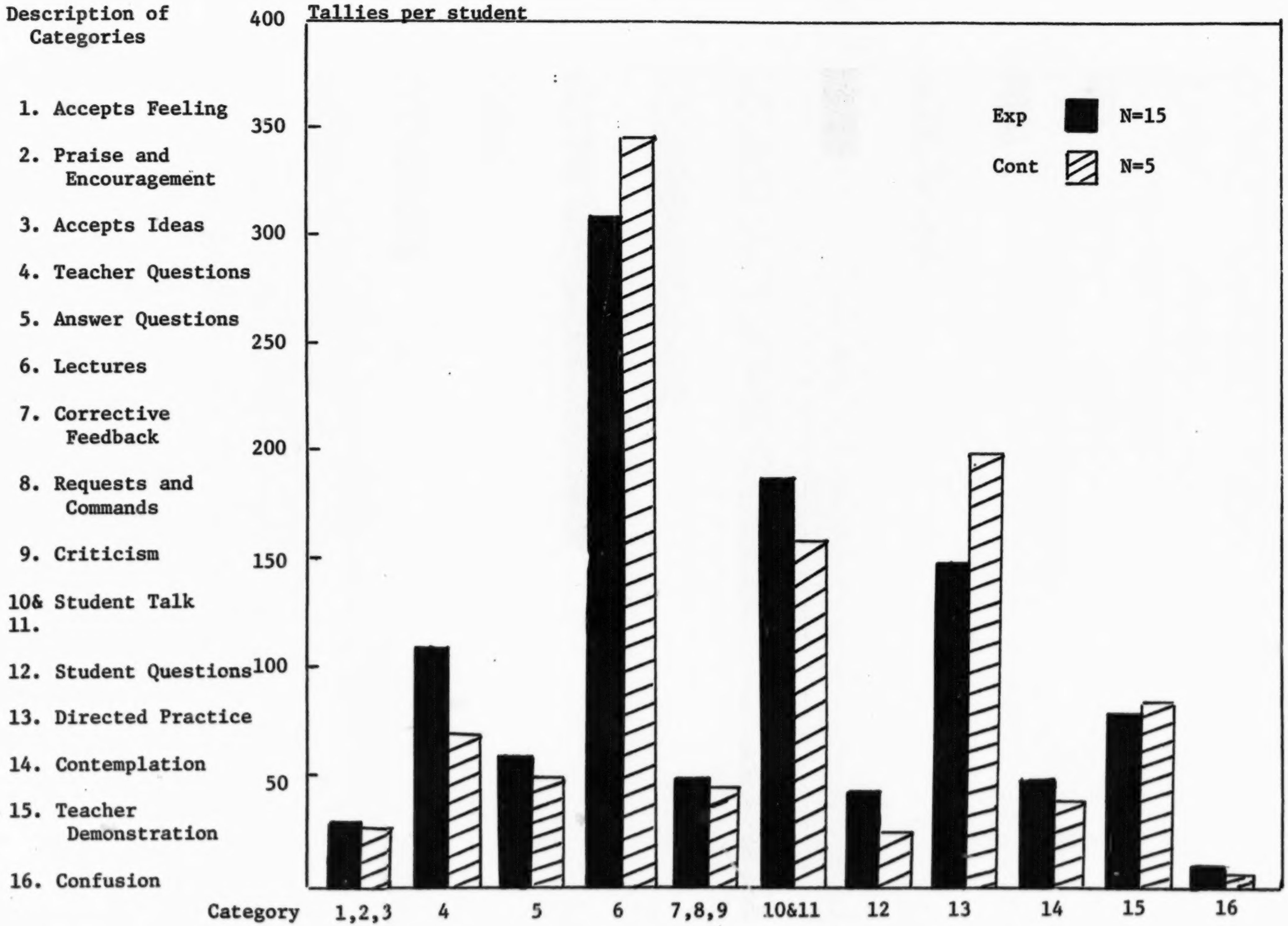

Figure 8. Mean Number of Tallies Per Category for Student Teachers in Science and Math.

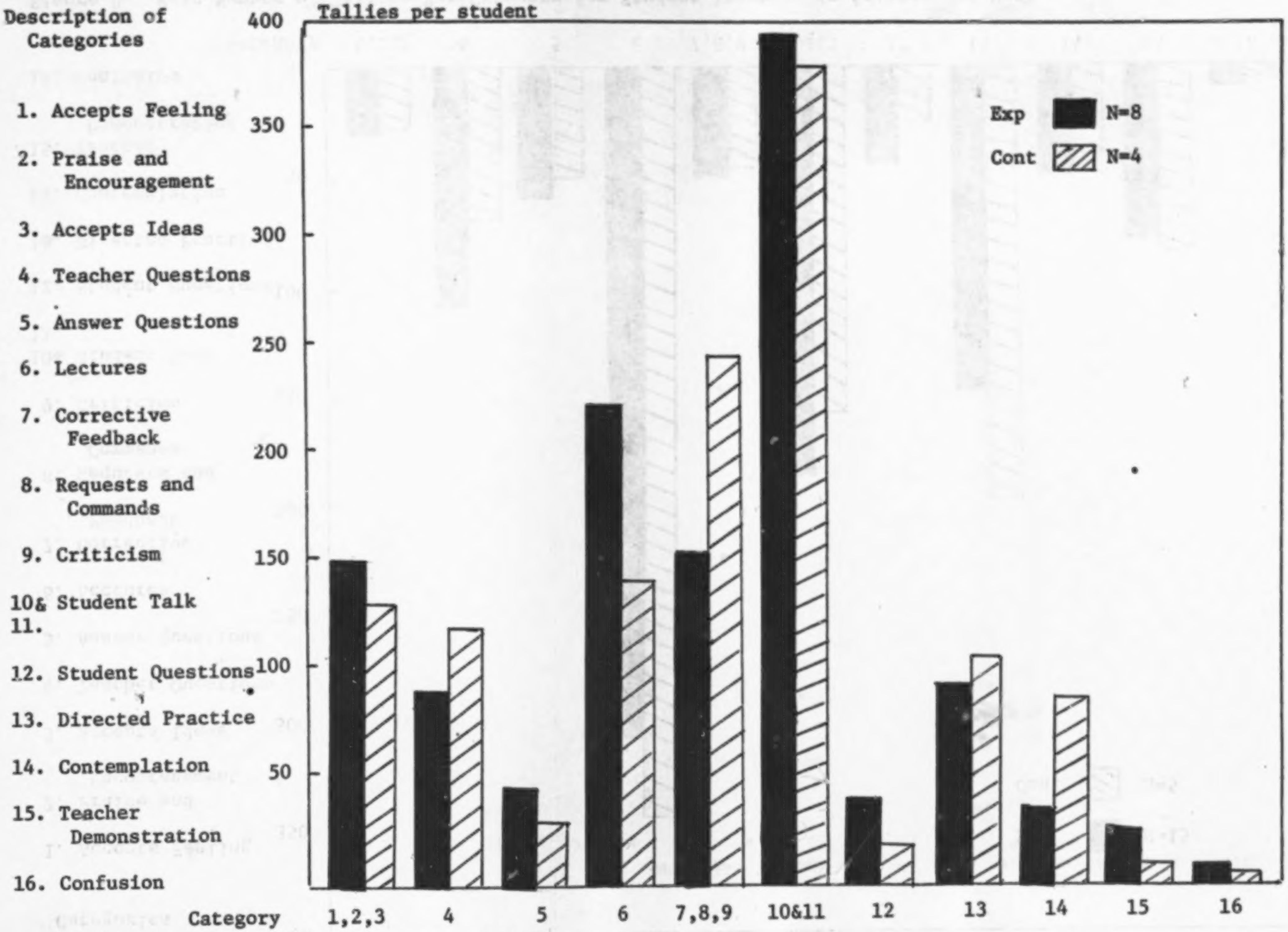

Figure 9. Mean Number of Tallies Per Category for Student Teachers in Foreign Language.

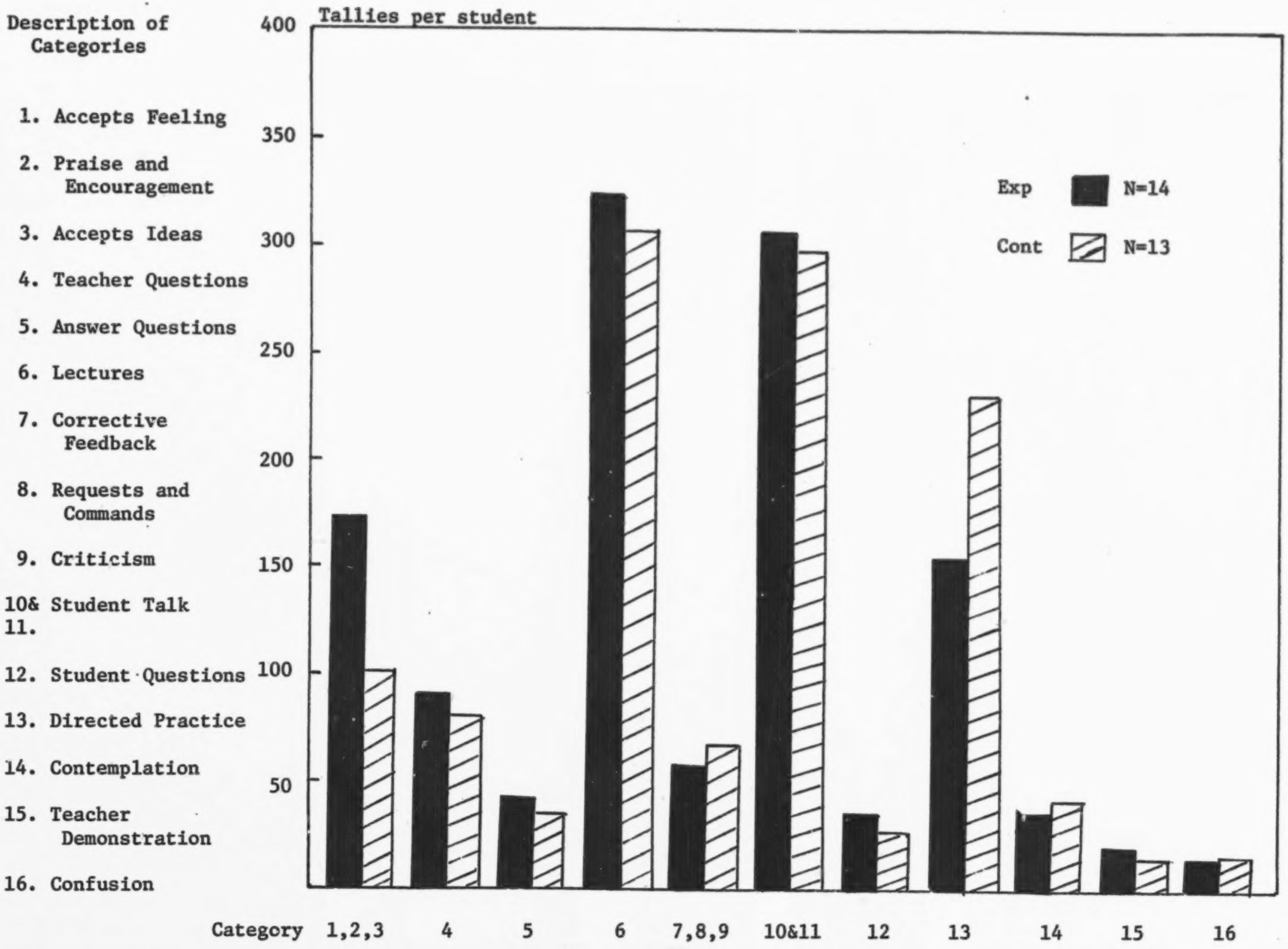

Figure 10. Mean Number of Tallies Per Category for Student Teachers in the Humanities.

Description of Categories

1. Accepts Feeling
2. Praise and Encouragement
3. Accepts Ideas
4. Teacher Questions
5. Answer Questions
6. Lectures
7. Corrective Feedback
8. Requests and Commands
9. Criticism
10& 11. Student Talk
12. Student Questions
13. Directed Practice
14. Contemplation
15. Teacher Demonstration
16. Confusion

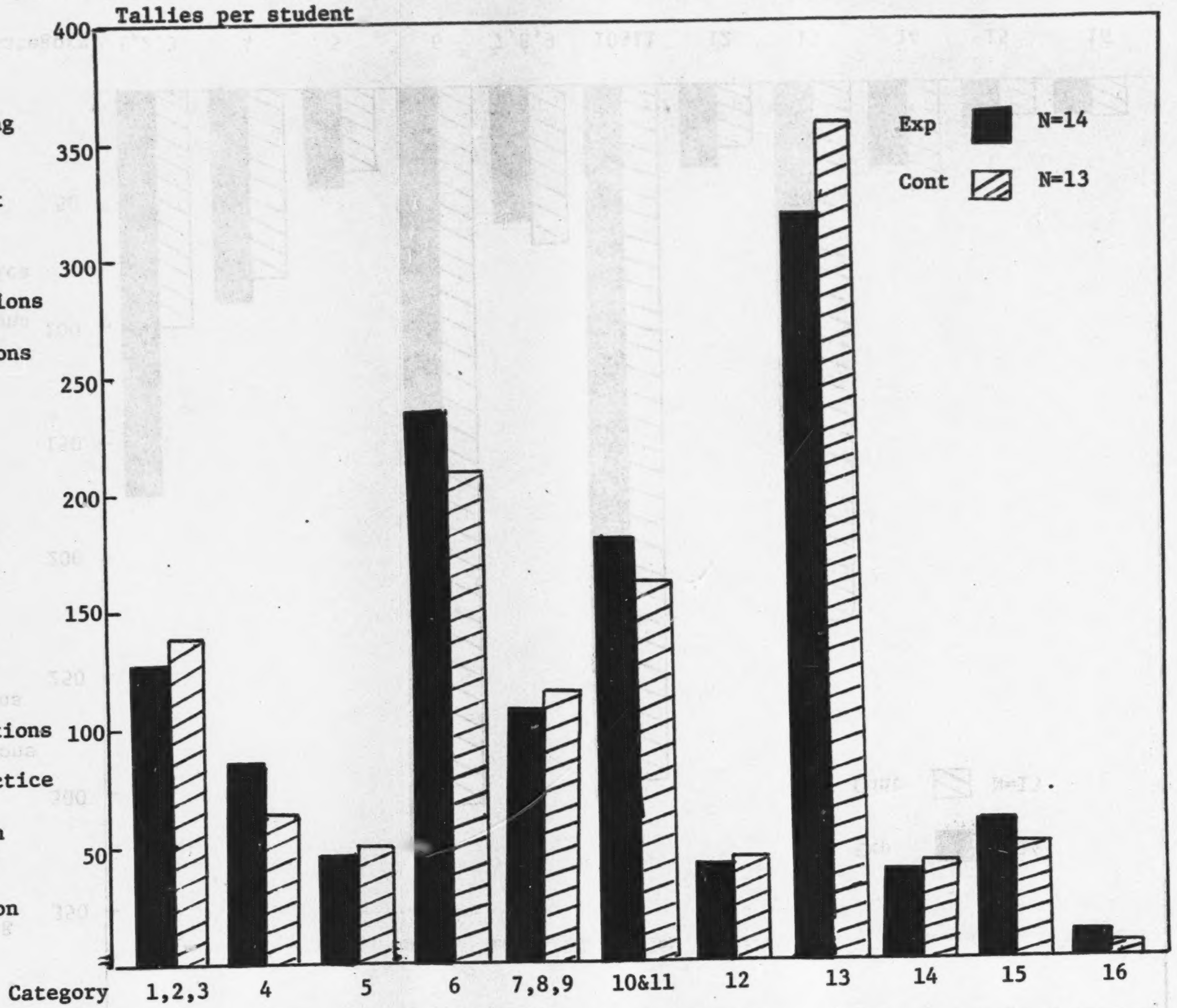

Figure 11. Mean Number of Tallies Per Category for Student Teachers in Practical Arts.

In terms of the patterns which appeared from the observation of Figures 8, 9, 10, and 11, it was evident that students in the experimental group made more use of the indirect categories, Categories 1, 2, and 3, and less use of the direct categories, Categories 7, 8, and 9. The experimental students asked more questions of their pupils and also answered more questions. The pupils of the experimental students also talked more (Categories 10 and 11) and the experimental students demonstrated more. The students of the control group used more directed practice (Category 13) and spent more time in the direct categories 7, 8, and 9.

A further comparison of all the mean number of tallies per category by academic area has been presented in table 11.

Table 11. A comparison of mean tallies per student in each of the 16 categories of behavior by academic area.

		MEAN TALLIES PER STUDENT									
	Category	Sci. & Math		For. Language		Humanities		Pract. Arts		Tot. Groups	
No.	Description	N=15 Exp	N=5 Con	N=8 Exp	N=4 Con	N=24 Exp	N=31 Con	N=14 Exp	N=13 Con	N=61 Exp	N=53 Con
1	Accepts Feeling	5.1	5.6	4.4	5.0	6.2	5.3	5.3	9.1	5.3	7.7
2	Praise and Encouragement	8.4	5.8	15.3	44.0	12.0	5.7	8.4	7.3	10.7	9.0
3	Accepts Ideas	18.2	18.1	123.1	82.3	153.3	91.3	114.1	122.5	147.6	107.3
4	Teacher Questions	110.1	68.2	92.1	121.3	91.6	81.2	86.3	63.5	95.0	78.7
5	Answer Questions	62.3	51.8	47.4	29.0	43.0	32.8	45.6	50.8	48.9	38.7
6	Lectures	307.9	346.6	224.4	142.3	324.0	306.3	233.6	209.5	286.2	274.0
7	Corrective Feedback	7.5	5.0	15.8	26.8	8.7	9.8	7.9	12.5	9.1	11.3
8	Requests & Commands	38.1	39.2	134.0	218.5	43.0	59.9	92.0	94.5	63.9	73.9
9	Criticism	7.8	8.0	4.6	4.8	6.0	8.9	5.9	4.9	6.1	6.1
10& 11	Student talk	187.2	158.4	395.1	380.3	303.7	298.9	179.4	161.8	255.7	232.0
12	Student Questions	46.1	24.4	41.3	18.3	35.5	29.4	41.7	43.8	39.4	33.0
13	Directed Practice	148.4	202.4	93.4	106.8	150.0	230.3	317.9	356.1	177.1	266.8
14	Contemplation	51.3	40.4	38.5	89.0	35.0	41.5	36.5	41.2	38.2	43.0
15	Teacher Demonstration	78.8	84.0	27.9	10.8	20.2	15.1	58.2	49.8	44.1	27.5
16	Confusion	9.0	6.0	10.8	6.8	12.1	15.5	10.4	6.7	10.7	10.5

Each tally in Table 11 represents three seconds of the category. In case the category is used for a period of less than three seconds, the tally indicates a change of category. For example, if a teacher asks a short question and receives a one-word answer, tallies are made in Categories 4 and 11 despite the fact that the entire sequence may have occurred in less than three seconds. The latter, however, occurs infrequently and tallies may generally be considered to represent a three-second interval in a given category.

Although obvious differences can be found in the number of tallies both between academic areas and between the experimental and the control groups, the investigators were of the opinion that the samples were too small in most cases to provide statistical validity for any test of significance of difference with the exception of the humanities area which provided a sample of 24 in the experimental group and 31 in the control group. Table 12 has provided a comparison of the experimental and the control groups in the humanities on the mean tallies in each category.

Table 12. A comparison of the experimental and control groups in the Humanities on the number Tallies in each of the sixteen categories.

Experimental N = 24 Control N = 31

Category	Group	Mean	S.D.	t	Level of Significance
1 Feeling	E	6.2	1.97	.44	n.s.
	C	5.3	1.62		
2 Praise	E	12.0	5.42	2.50	.02
	C	5.7	1.52		
3 Accepts Ideas	E	153.3	260.44	2.71	.01
	C	91.3	248.02		
4. Teacher Questions	E	91.6	95.26	.70	n.s.
	C	81.2	111.46		
5 Answers Questions	E	43.0	83.25	1.05	n.s.
	C	32.8	21.90		
6 Lecture	E	324.0	1948.6	.31	n.s.
	C	306.3	1283.8		
7 Feedback	E	8.7	5.7	.39	n.s.
	C	9.8	3.3		
8 Commands	E	43.0	42.8	1.21	n.s.
	C	59.9	112.8		
9 Criticism	E	6.0	6.6	.80	n.s.
	C	8.9	5.5		
10& Student Talk	E	303.7	716.6	.12	n.s.
11	C	298.9	1007.6		
12 Student Question	E	35.5	52.3	.81	n.s.
	C	29.4	12.8		
13 Directed Practice	E	150.0	1016.6	1.68	.10
	C	230.0	1185.7		
14 Contemplation	E	35.0	41.4	.67	n.s.
	C	41.5	46.0		
15 Demonstration	E	20.2	13.2	1.08	n.s.
	C	15.1	8.8		
16 Confusion	E	12.1	16.6	.43	n.s.
	C	15.5	41.3		
i/d $\frac{1,2,3}{7,8,9}$	E	4.9	.76	3.46	.001
	C	1.8	.16		

The t-ratio computed on the difference of means between the experimental and the control groups in the humanities proved to be significant at the .02 level in Category 2 (Praise and Encouragement) and at the .01 level in Category 3 (Acceptance of Ideas). As was true with the total group, the i/d ratio (indirect) Categories 1, 2, and 3 divided by the direct Categories 7, 8, and 9) proved to be significant at the .001 level.

By examining the individual cells in a 16 row by 16 column matrix of mean tallies for both the experimental and the control groups in the humanities area, one was able to determine not only the extended use of any given category, but also the activity which preceded or followed any given category. For example, by reading horizontally across a row, one would determine the category and the vertical column would designate the category which followed. The 3-3 cell indicates extended use of Category 3 (Acceptance of Ideas) while the 3-4 cell indicates acceptance of ideas followed by teacher questions and the 3-6 cell would indicate acceptance of ideas followed by lecture. A matrix of mean tallies per experimental student in the humanities in each of the sixteen categories has been presented in Table 13, and comparable information about the students of the control group has been presented in Table 14.

Matrices for the experimental and control students in each of the other academic areas have been presented in Tables 18, 19, 20, 21, 22, and 23 in the Appendix.

An examination of the 3-3 cells in Tables 13 and 14 revealed a total mean of 82.7 tallies for the experimental students as compared to a total mean tally of 48.9 for the control group, a difference of 34 tallies. The experimental students not only used more extended use of Category 3, Acceptance of Ideas, but they also followed acceptance of ideas by having more student talk

Table 13. A matrix of mean tallies per student of the 24 experimental students in the Humanities of each of the sixteen categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.8	0.1	0.7	0.5	0.0	0.7	0.0	0.4	0.0	0.4	0.4	0.4	0.4	0.2	0.0	0.1
2	0.3	1.4	2.7	2.5	0.1	0.9	0.1	0.5	0.0	1.0	0.8	0.5	0.8	0.1	0.1	0.1
3	1.1	6.8	82.7	17.4	0.0	9.7	0.9	4.3	0.3	14.3	5.2	3.7	2.3	2.3	2.0	0.5
4	0.3	0.0	1.0	19.3	0.0	2.2	0.2	11.9	0.1	41.9	1.6	1.3	0.3	10.9	0.1	0.4
5	0.4	0.3	2.5	2.4	20.3	2.4	0.2	1.0	0.1	0.9	2.3	5.8	2.5	0.7	0.5	0.6
6	0.6	0.2	1.1	15.3	0.0	288.2	0.0	3.1	0.3	3.0	1.0	3.4	1.5	3.0	2.8	0.9
7	0.1	0.0	1.5	1.4	0.0	0.4	2.1	0.3	0.2	2.0	0.1	0.2	0.0	0.2	0.1	0.0
8	0.2	0.1	0.9	1.7	0.0	2.2	0.1	13.2	0.2	15.2	1.0	1.5	3.8	2.0	0.8	0.2
9	0.0	0.0	0.2	0.5	0.0	0.3	0.1	0.4	3.1	0.6	0.0	0.3	0.2	0.2	0.0	0.2
10	0.6	1.7	46.0	15.6	0.3	4.5	4.3	2.5	0.8	118.3	2.3	2.0	8.4	2.1	1.9	0.9
11	0.3	0.9	8.5	2.7	0.2	0.7	0.4	0.3	0.0	0.3	65.8	1.7	8.5	0.6	0.1	0.7
12	0.0	0.0	0.5	1.0	21.5	0.1	0.1	0.0	0.2	0.1	1.2	8.9	0.5	1.1	0.0	0.1
13	0.2	0.0	1.3	2.1	0.0	2.2	0.1	2.0	0.3	7.8	8.5	4.6	119.3	0.2	0.3	1.2
14	0.3	0.2	1.5	6.0	0.2	5.0	0.1	2.2	0.0	5.5	1.0	0.5	0.4	11.3	0.7	0.1
15	0.0	0.1	1.6	2.5	0.1	2.8	0.0	0.5	0.1	0.8	0.2	0.2	0.3	0.2	10.5	0.1
16	0.0	0.0	0.5	0.3	0.0	0.2	0.0	0.4	0.3	0.2	0.3	0.7	0.9	0.2	0.1	5.9

Table 14. A matrix of mean tallies per student of the 31 control students in the Humanities on each of the sixteen categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2.3	0.0	0.4	0.7	0.0	0.6	0.1	0.2	0.0	0.1	0.1	0.1	0.3	0.2	0.0	0.0
2	0.0	0.9	1.5	1.6	0.0	0.4	0.1	0.3	0.1	0.3	0.1	0.1	0.1	0.2	0.1	0.1
3	0.8	3.1	48.9	14.0	0.2	7.2	0.7	2.5	0.5	5.9	1.9	1.8	1.1	2.1	0.9	0.4
4	0.3	0.1	1.1	16.4	0.0	2.2	0.1	18.0	0.3	29.4	2.0	1.1	2.1	8.3	0.3	0.3
5	0.1	0.2	1.4	1.8	13.5	2.9	0.3	1.3	0.4	0.7	1.3	4.6	2.9	1.0	0.4	0.4
6	0.5	0.0	0.9	11.1	0.0	273.9	0.1	4.2	0.7	1.7	1.4	4.1	2.3	2.7	2.0	0.9
7	0.1	0.1	1.9	1.3	0.0	0.6	3.4	0.4	0.1	1.1	0.3	0.2	0.5	0.2	0.1	0.0
8	0.2	0.1	0.6	2.5	0.0	2.2	0.1	20.2	0.5	21.3	2.1	1.5	3.9	3.9	0.4	0.5
9	0.0	0.0	0.5	1.6	0.0	0.7	0.1	0.4	3.9	0.7	0.1	0.3	0.7	0.9	0.0	0.1
10	0.5	0.9	27.3	26.3	0.1	3.2	4.0	5.5	1.1	112.5	2.0	2.0	11.1	3.4	0.4	1.0
11	0.4	0.3	3.6	2.9	0.0	12.	0.4	0.3	0.5	0.5	91.3	1.2	3.9	0.9	0.0	0.7
12	0.0	0.1	0.5	0.8	18.5	0.0	0.1	0.3	0.1	0.2	0.8	7.5	0.2	0.5	0.2	0.2
13	0.1	0.0	1.1	3.3	0.1	3.1	0.3	3.1	0.5	10.4	3.3	3.8	199.1	0.3	0.3	1.0
14	0.2	0.0	1.4	5.3	0.2	4.3	0.1	3.0	0.4	5.7	0.8	1.3	4.7	17.5	0.5	0.5
15	0.0	0.0	0.7	1.2	0.0	2.5	0.0	0.4	0.0	0.1	0.1	0.2	0.2	0.1	9.5	0.2
16	0.0	0.0	0.1	0.9	0.1	1.9	0.0	6.1	0.2	0.6	0.5	0.4	0.6	0.2	0.1	9.4

as indicated in cells 3-10 and 3-11. The total number of tallies in these cells for the experimental group was 19.5 as compared to 7.8 for the control. These cells indicate that acceptance of ideas was used almost twice as much by experimental students and that this category was followed by more than twice as much student talk.

The 4-4 cells indicate more extended use of teacher questions by the experimental students while the 4-8 cells indicate that when the control students asked questions, they were also more likely to request or command a student to answer it than were the students in the experimental group. The 4-10 cells show that teacher questions were followed by student talk more often in the experimental group, 41.9 tallies for the experimental and 29.4 for the control.

The 5-5 cells show the experimental students making more extended use of Category 5 (Answering Student's Questions). They were also more likely to have students talk follow their answers as indicated by 5-10 and 5-11 cells.

The control group spent more extended time in Category 8 (Requests and Commands) as indicated by the 8-8 cells and, as a result, they were more likely to have some category of student talk follow in either the 8-10 or 8-11 cell, 23.3 tallies compared to 16.2 tallies for the experimental students. The control students also received more tallies in the 8-14 cell indicating that their commands were greeted (more often) with contemplative silence.

The indirect pattern of the experimental students was continued as shown in Category 10 and 11. Not only did the pupils of the experimental group talk more, but student talk was more often followed by the teacher's accepting and using the ideas of the students, 54.5 tallies for the experimental to 30.9 for the control in cells 10-3 and 11-3.

The 16-16 cells show that the control students had more confusion in their classes and that the confusion was followed by commands, cells 16-8.

C. A COMPARISON OF THE STUDENT TEACHING GRADES OF EXPERIMENTAL AND CONTROL GROUP STUDENTS

Student teaching at Kansas State Teachers College is done in the public schools of the state, preferably within a one hundred mile radius of the college. Assignments are made by the Coordinator of Student Teaching after having conferred with the student to determine his preference of location and other factors which might influence his placement. The established centers for student teaching are located in the cities of Emporia, Wichita, Hutchinson, Topeka, Kansas City, and Chanute.

The students of the experimental and the control groups were assigned to student teaching during the same period by the Coordinator without reference to their assignment in the project. In fact, it was unlikely that the Coordinator was aware of the student's assignment to either the experimental or the control group. Table 15 shows the distribution of students of the experimental and the control groups in the six student teaching centers.

Table 15. The distribution of experimental and control group students in six student teaching centers.

	Emporia	Wichita	Hutchinson	Topeka	Kansas City	Chanute	Other	Total
Exp.	17	13	6	10	8	3	5	62
Con.	14	14	2	5	10	3	5	53
Total	31	27	8	15	18	6	10	115

The distribution of students was rather equitable despite the fact that no effort was made to control the student teaching assignments. Since the college policy is that no more than one student teacher be assigned to each public school supervising teacher, a minimum of 115 supervising teachers contributed to the grades of the students. The supervising teachers were apprized of neither the project nor its specific purposes although it was necessary for the independent observer to arrange three visits for evaluative purposes during the nine-week period of full-time student teaching. It must be recognized, however, that the possibility exists that the student teacher had opportunity to discuss the project with the supervising teacher and to reveal his group assignment in the project. A comparison of the grades submitted by the public school supervising teacher for the student teachers has been presented in Table 16.

Table 16. A comparison of grades earned in student teaching by students of the experimental and control groups.

	Letter Grades				Mean GPA[a]	t-ratio	p
	A	B	C	D			
Exp.	46	16	0	0	3.74	2.89	.005
Cont.	29	18	5	1	3.41		

[a] Based on 4.0 scale

Student teachers who had completed the experimental program earned 46 A's and 16 B's, whereas the students of the control group earned 29 A's, 18 B's, 5 C's, and one D. The mean grade point average of the experimental students was 3.74 as compared to 3.41 earned by the control group. The t-ratios computed on the difference of the means was significant at the .005 level.

3

D. THE NATIONAL TEACHER EXAMINATION

The Common Examinations of the National Teachers Examinations were first administered October 2, 1965, approximately two weeks after the project was begun in mid-September. The Common Examinations were reported in three parts; General Education, Professional Education, and the total score. As was described in Table 4, page 96, no significant differences were found between the experimental and the control groups on the initial administration of the test.

The National Teachers Examination was administered on a re-test basis on January 7, 1967, at the conclusion of the project to determine whether significant differences existed on scores made on either the General Education or Professional Education section which might be attributed to the experimental program. The mean scores of the pre- and post-tests, the gain scores, t-ratios, and levels of significance of the difference of scores between the experimental and the control groups have been presented in Table 17.

Table 17. The means, gain scores, t-ratics, and level of significance of the pre- and post-test scores of the experimental and control groups on the common examinations of the national teachers examination.

	Experimental Mean			Control Mean Scores			Total Gain		t-ratio on Gain	P
	Pre	Post	Gain	Pre	Post	Gain	Exp.	Cont.		
General Education	390.211	395.509	5.298	382.854	388.146	5.292	5.298	5.292	.0014	n.s.
Professional Education	221.877	238.509	16.632	224.333	248.750	24.417	16.632	24.417	2.097	.05
Total Scores	612.008	634.018	21.930	607.187	636.895	29.708	21.930	29.708	1.280	n.s.

On the General Education section the experimental group made a mean gain score of 5.298 and the control group made a gain of 5.292. The difference was not significant. On the Professional Education section, the experimental group made a mean gain of 16.632 and the mean gain for the control group was 24.418. The difference in gain of 7.775 was significant at the .05 level. On the gain score for the total Common Examination, the experimental group had a mean gain of 21.930, and the control group had a mean gain of 29.708. The difference was not statistically significant.

It is interesting to note that both the experimental and the control groups exceeded the 60th percentile on the national norm for college seniors on the General Education section and on the total Common Examinations. On the Professional Education section, the experimental group slightly exceeded the 50th percentile and the control group exceeded the 60th percentile of the national norm.

CHAPTER IV

SUMMARY, FINDINGS AND CONCLUSIONS

I. SUMMARY OF THE STUDY

The primary purpose of the study was to design and to test an experimental program for the presentation of professional education to prospective secondary teachers. The experimental program was designed to examine the proposition that valid content in teacher education (content which affects teacher behavior in the classroom) could best be achieved through the integration of professional content with companion laboratory experiences, both presented in the light of the best that is known about the teaching-learning process.

The study was conceived with a full awareness of the controversy surrounding the value of courses in professional education. Despite the investigators' conviction that professional courses contributed significantly to the preparation of effective teachers, they were aware that there was little documented evidence that such courses produced behavioral change in classroom teachers. Furthermore, the investigators were agreed that there were practices and theories in the professional courses which could not be supported under a "best that is known about teaching and learning" assumption. For example, the investigators questioned the largely expository method of presentation which produced vicarious rather than direct experiences for students. They questioned the value of theory which often preceded practice by as much as two years and the overlapping content, repetition, and stress on facts rather than concepts and understandings. They particularly questioned the autocratic instructional methods often employed in the professional courses.

As a result of the concerns of the project staff, a list of operational principles was formulated to be used in the experimental program. These principles were used as guidelines throughout the project.

1. Formal lecture, that is prepared lecture, was not used. Informal lecture was used spontaneously if it answered an expressed need or anxiety of a student or was necessary for immediate progress.
2. Since tests represented a threat and placed an emphasis on facts, no tests were given during the duration of the project.
3. Since the classrooms were to be as nearly threat-free as possible, no sarcasm or ridicule was used and the classes were dedicated to both the cognitive and affective involvement of the students in the teacher education process.

Five null hypotheses were formulated to be tested by the experimental design:

1. There is no significant difference in the teaching behavior of students enrolled in the experimental program and those enrolled in the control program as measured by independent observers using the Classroom Observation Record.
2. There is no significant difference in the behavior of the pupils of both the experimental and the control students as measured by independent observers using the Classroom Observation Record.
3. There is no significant difference in the teaching patterns of the experimental and the control students as measured by independent observers using a sixteen category system of interaction analysis.
4. There is no significant difference in grades earned in student teaching between the experimental and the control students.

5. There is no significant difference in scores earned on the professional information section of the National Teachers Examination by the experimental and the control students.

Basic to the investigation of the questions posed in the study was the development of the experimental program. The criteria for the development of the program were (1) that the content of professional education in the foundational areas of philosophy, psychology, sociology, and anthropology would be integrated into either a problem or a thematic approach, (2) that laboratory experiences of observation and participation would keep pace with the study of content, and (3) that new techniques and media which represented the best that was known about teaching and learning would be used in the presentation of both content and laboratory experiences.

The experimental program which was developed replaced the formal courses of professional education with three "phases" of professional preparation based on a relatively unstructured study of content in conjunction with carefully planned laboratory experiences to be acquired through direct contact with students. Phase I of the program occurred during the first semester of the junior year and was called the "Observation" phase. This phase was based on the assumption that understandings and insights into the nature of the learner were best acquired initially by observation. The observation was accomplished through the use of a system of closed-circuit television and direct observation in classrooms. In addition to the observation, a carefully selected list of readings in the broad area of philosophy, psychology, sociology and anthropology was coordinated with the laboratory experiences. The students met in classes for observation five hours weekly and in seminars two hours weekly to discuss and relate the readings to the laboratory experiences.

The second phase was called the "Participation" phase and occurred during the second semester of the student's junior year. The phase was based on the assumption that after the pre-service teacher had developed certain desirable concepts through observation, they could be further refined and used as foundations for more complex concepts. Moreover, techniques could be developed which were consistent with the student's conceptual orientation through actual participation in instructional situations.

During Phase II, the student spent one hour daily in a high school classroom in his major area of preparation. He was expected to assist the supervising teacher in the planning, preparation, and instruction of the classes whenever possible. In addition to the responsibilities incurred through participation, the student continued with the selected readings and the two weekly seminars.

Phase III of the experimental program was the student teaching phase during which the students spent one-half semester in full-time student teaching in the public schools. During this phase, the students continued reading but the seminars were reduced to approximately five.

The experimental program described was tested against a rather conventional program of teacher education consisting of seven courses of twenty semester hours credit. The latter was considered comparable to most programs offered in institutions providing teacher education.

In September 1965, students were assigned to both the experimental and control programs. The criteria for selection had required that (1) the student would enter the teacher education curriculum at this time, (2) had taken no education courses previously, (3) had an earned grade-point-average of not less than 2.3 on a 4-point scale, and (4) would accept assignment to either group. One hundred and forty-one students met the criteria for assignment and were assigned by a random method. Seventy-one were assigned to the experimental groups and 70 to the control group.

During the project, 26 students withdrew for various reasons; thus, 115 remained for whom complete data were obtained. Of these, 62 were in the experimental group and 53 were in the control group.

The burden of the investigation was to determine the extent of behavioral change in those students subjected to the experimental program in comparison to those who followed a conventional teacher education program. With the exception of the National Teachers Examination, all data collected were designed to reveal behavioral characteristics rather than factual information. The data were derived from (1) The Classroom Observation Record, (2) a system of interaction analysis, (3) the National Teachers Examination, and (4) grades earned in student teaching.

Data relevant to the Classroom Observation Record and interaction analysis were obtained by six independent observers who were not connected with the College or the project. The observers held not only the highest degrees in their fields but also positions which required them to demonstrate knowledge about teaching. The observers were trained to administer both the Classroom Observation Record and the 16 category system of interaction analysis. At the conclusion of their training, the observers were found to correlate in their judgments on both instruments at above .80.

The observers made three observational visits to each student of both the experimental and control groups. They attempted to space these visits at three-week intervals. The identity of the student's assignment to either the experimental or the control group was concealed from the observer who was instructed to enter the classroom when the student teacher was in charge, hold no conversation with the student, observe ten minutes, and to begin the interaction analysis precisely at the eleventh minute and continue through the thirtieth minute. The observer was then to observe the remainder of the period. At the end of the period, the observer was instructed to leave the classroom and complete the Classroom Observation Record immediately.

The Common Examinations of the National Teachers Examinations were administered to both the experimental and control groups on a pre-and-post basis. The initial testing was administered October 2, 1965 and the post-test January 7, 1967. Data pertaining to grades earned in student teaching were also collected and analyzed. The data were tested for significance of difference through analysis of variance and t-tests.

II. FINDINGS

The data revealed several significant differences between the experimental and the control groups at the conclusion of the experimental program. The findings have been reported from each of the four major sources of data: (1) The Classroom Observation Record, (2) the sixteen category system of interaction analysis, (3) grades earned in student teaching, and (4) the results of the National Teachers Examination.

A. Findings from the Classroom Observation Record.

1. Pupils taught by students of the experimental group were rated by the observers as being more alert, responsible, confident, and initiating than were those taught by students of the control group. The t-ratio computed on total pupil behavior was 3.364 and was significant at the .001 level of confidence.

2. The students of the experimental group were rated by the observers during their student teaching as being more fair, democratic, responsible, understanding, kindly, stimulating, original, alert, attractive, responsible, steady, poised, confident, systematic, adaptable, optimistic, integrated, and broad than were the students of the control group. The total teacher behavior mean rating for the experimental group was 101.78 as compared to a mean rating of 93.15 for the control group. The difference was significant at the .001 level of confidence.

B. Findings from Interaction Analysis

1. In terms of mean tallies per category, the students of the experimental group tended to use the following categories more frequently than did the students in the control group: (2) Praise, (3) Acceptance and Use of Ideas of Students, (4) Teacher Questions, (5) Answer Questions, (6) Lecture, (10 & 11) Students Talk, (12) Student Questions and (15) Demonstration.
2. In terms of mean tallies per category the control group tended to use the following categories more frequently than did the experimental group: (1) Accept Feeling, (7) Corrective Feedback, (8) Directions, (9) Criticism, (13) Directed Practice, (14) Silence and Contemplation, and (15) Confusion.
3. The academic area taught was more influential in determining the freqûency of use of categories 2, Praise and Reward; 7, Corrective Feedback; 8, Requests and Commands; 10 and 11, Student Talk; 13, Directed Practice; and 14, Teacher Demon-

stration than was the experimental program. The difference of usage of each of these categories attributable to the academic area was found through an analysis of variance to be significant at the .01 level of confidence.

4. Students in science and mathematics used considerably fewer indirect activities than did students in the humanities.
5. Students in foreign language made more use of the direct categories than did students of other academic areas. They also made more use of the student talk categories.
6. Students in science and mathematics, and in practical arts, used more directed practice and more teacher demonstration than did students in other academic areas.
7. The i/d ratio (indirect Categories 1, 2, and 3 divided by the direct Categories 7, 8, and 9) of the experimental students as a group was significantly higher than was the i/d ratio of the control group. The difference was significant at the .01 level. In other words, the experimental students used more praise and reward and accepted and used the ideas of their students more, while using less corrective feedback, commands, and criticism than did the control group.
8. The significantly higher i/d ratio of the experimental students was found to be directly attributable to the experimental program.
9. The experimental students in the humanities used more praise, accepted and used the idea of the students more, and had a higher i/d ratio than did the control students in the human-

ities. The differences were significant at the .02, .01, and .001 levels of confidence respectively.

10. An examination of the total matrices of the experimental and control students in the humanities revealed that the experimental students used the following patterns of teaching more frequently than did the control group:
    a. used more extended use of acceptance of ideas
    b. acceptance of students' ideas was more often followed by student talk
    c. used more extended use of teacher questions
    d. were less likely to command the student to answer the questions asked
    e. teacher questions were more often followed by student talk
    f. used more extended answering of student questions
    g. were more likely to have student talk following teacher questions
    h. were more likely to accept the students' ideas following student talk

C. Findings from Grades Earned in Student Teaching.

Students in the experimental group earned higher grades in student teaching. The difference was significant at above the .01 level of confidence.

D. Findings from The National Teachers Examination.

1. There were no significant differences between the gain scores of the experimental and the control groups on the General Education Section of the Common Examinations of the National Teachers Examination.

2. Differences significant at the .05 level of confidence were found between the experimental and control groups' gain scores on the Professional Education Section of the Common Examinations of the National Teachers Examination with the control group making the higher gain score.
3. No significant differences were found on the total gain scores of the experimental and control groups on the total Common Examinations of the National Teachers Examination.

III. CONCLUSIONS

A. General Conclusions

As a result of the experimental study, the investigators were unable to accept any of the five null hypotheses to be tested. Consequently, the five major conclusions listed below have revised and restated the hypotheses to agree with the data which have been presented in this study.

1. There was a significant difference in the teaching behavior of students enrolled in the control program as measured by independent observers using the Classroom Observation Record. The experimental group received the more desirable behavior ratings.
2. There was a significant difference in the behavior of the pupils of both the experimental and control students as measured by independent observers using the Classroom Observation Record. The more desirable behavior ratings were given the pupils of the experimental teachers.
3. There was a significant difference in the teaching patterns of the experimental and the control students as measured by inde-

pendent observers using a sixteen category system of interaction analysis. The experimental group was found to use significantly more indirect activity.

4. Grades earned in student teaching were significantly higher for the experimental students than were those of the control students.
5. Significantly higher scores were made on the Professional Education section of the National Teachers Examination by the control students than were made by the experimental students.

B. Related Conclusions

The data examined in this study provided no evidence that the possession of factual information about the professional content of teacher education was sufficient to alter teaching behavior. In fact, evidence to the contrary was indicated in that the students of the control group learned more facts as measured by the National Teachers Examination than did those of the experimental group. Yet their teaching behavior tended to be more traditional and less desirable as judged by qualified independent observers. Consequently, the following related conclusions seem justified:

1. The possession of factual information about professional content does not necessarily commit the teacher to actions consistent with that information.
2. Behavioral changes in prospective teachers can be more readily effected by programs of professional education which stress direct involvement of the prospective teacher in the teaching-learning process through meaningful laboratory experiences which are made relevant to content and theory.

3. Prospective teachers can be sensitized to the use of certain desirable teaching actions such as the use of praise and the acceptance of students' ideas through a planned professional program utilizing demonstration, observation, and participation.

IV. CONCLUDING STATEMENT CONCERNING THE EXPERIMENTAL PROGRAM

The behavioral change evidenced by the experimental group was primarily a result of the experimental program of teacher education. Permeating that program was a process using extensive democratic involvement. The process, although composed of many component parts, seemed to have a composite effect as a prime influencer of the teaching behavior of the experimental students. The process, as defined by the investigators, was a combination of long known and generally acceptable principles of human relations combined with cognitive field learning theories. The process was characterized by (1) constant effort to reduce tensions and threats in the classroom, (2) persistent effort to recognize and use principles of good human relations based on a feeling for individual worth and dignity, (3) efforts to assure internal motivation rather than external or imposed motivation, and (4) constant use of student involvement in the teaching-learning process through problem solving, free discussion and seminars, and laboratory experience of observation and participation.

Although the statement is subjective and difficult to validate conclusively, the investigators have agreed that, in their opinion, the democratic involvement process used in the experimental program was the most significant factor in influencing the behavior of the experimental students.

V. RECOMMENDATIONS FOR FURTHER STUDY

1. Considerable evidence was amassed in this study pointing out a significant difference in the teaching behaviors of the students in the experimental group as compared to those of the control group. Since all data were collected during the period of student teaching, it seems important that evidence of the durability of the change be collected. For example, will the difference still be evident after one year of teaching or after three years of teaching? It seems possible that the difference could diminish rapidly in the public schools, particularly if the teacher is under the supervision of traditional administrators. Therefore, it is recommended that further study be made concerning the durability of change achieved in pre-service programs such as this.
2. It is strongly recommended that the study be replicated at other teacher education institutions to test the transference of the program.
3. It was the opinion of the investigators that the significantly different patterns of behavior displayed by students of the experimental group were due primarily to the total process employed in the experimental program rather than to any of the isolated components; that is to say that of the many components which made up the experimental program, each contributed to the effectiveness of the program in its own unique way. The threat-free classrooms, abolishing of tests, complete lack of sarcasm and ridicule, free discussion, observation, opportunities

for participation, case studies, and many other opportunities to become involved in the teaching process, all contributed to what might be called the experimental process. Little is known about the effective use of human relations in teacher education and further study is recommended in the process which might be called the "democratic involvement" process.

APPENDIX

Table 18. A matrix of mean tallies per student of the 24 experimental students in the practical arts of each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.2	0.0	0.9	0.4	0.0	0.4	0.0	0.3	0.0	0.2	0.1	0.5	0.9	0.1	0.2	0.0
2	0.1	1.1	1.2	1.1	0.0	0.6	0.0	1.1	0.0	0.1	0.4	0.3	1.7	0.4	0.3	0.1
3	1.2	3.0	54.0	14.9	0.1	10.1	0.6	5.4	0.3	7.2	2.9	3.6	2.6	3.2	4.8	0.5
4	0.2	0.1	0.9	17.4	0.0	1.9	0.1	8.9	0.2	44.0	0.4	1.0	1.6	9.0	0.3	0.3
5	0.8	0.2	1.6	4.4	14.8	2.5	0.2	2.9	0.0	1.2	2.9	5.5	4.8	0.9	2.7	0.3
6	0.2	0.2	1.7	11.5	0.0	191.0	0.2	6.1	0.7	1.1	1.6	3.6	3.8	2.3	8.4	1.1
7	0.1	0.1	1.8	0.9	0.1	0.3	1.9	0.2	0.1	0.9	0.2	0.4	0.6	0.2	0.2	0.0
8	0.3	0.1	1.1	2.3	0.1	2.8	0.1	36.8	0.6	13.6	1.4	3.4	24.1	3.0	1.9	0.4
9	0.0	0.0	0.2	0.9	0.0	0.5	0.1	0.6	2.1	0.2	0.1	0.2	0.4	0.2	0.4	0.0
10	0.1	1.6	36.5	13.9	0.1	3.7	3.1	4.5	0.9	44.1	1.5	2.7	5.6	1.8	3.6	0.6
11	0.2	0.4	4.6	1.6	0.2	1.0	0.4	0.5	0.1	0.1	34.9	2.8	7.0	0.9	0.1	0.3
12	0.1	0.1	0.4	0.6	29.9	0.2	0.0	0.4	0.0	0.1	2.0	6.6	1.1	0.1	0.1	0.1
13	0.4	1.5	2.3	5.5	0.1	5.1	1.0	8.8	0.4	5.2	5.9	8.9	259.6	0.4	1.5	1.2
14	0.1	0.0	2.2	6.4	0.1	3.4	0.0	3.2	0.1	4.9	0.4	0.9	0.7	13.4	1.5	0.3
15	0.3	0.0	4.2	3.7	0.3	8.5	0.1	2.0	0.4	1.2	0.5	1.2	2.1	0.5	33.1	0.1
16	0.0	0.0	0.3	0.6	0.0	1.6	0.0	0.8	0.0	0.3	0.1	0.1	0.1	0.1	0.1	5.3

Table 19. A matrix of mean tallies per student of the 31 control students in the foreign language on each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.6	0.0	1.2	0.2	0.0	0.8	0.0	0.4	0.0	0.2	0.4	0.0	1.0	0.0	0.0	0.0
2	0.2	0.0	2.2	1.4	0.0	1.6	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.2	0.0
3	1.2	4.0	120.0	13.6	0.4	8.4	1.0	3.0	0.0	10.2	2.2	2.8	2.0	3.6	8.8	1.0
4	0.0	0.0	1.4	8.8	0.0	0.4	0.0	12.6	0.0	38.6	0.2	1.0	0.0	0.6	0.0	0.2
5	0.6	0.6	1.6	2.6	34.2	1.8	0.0	1.8	0.2	0.4	1.0	2.0	1.4	1.4	2.2	0.2
6	0.4	0.0	0.4	17.6	0.0	283.2	0.2	3.2	0.0	1.8	0.4	3.2	1.0	3.2	11.8	0.6
7	0.0	0.0	2.0	1.0	0.0	0.2	1.2	0.2	0.0	0.8	0.0	0.0	0.4	0.0	0.0	0.0
8	0.2	0.0	1.0	1.6	0.0	2.4	0.0	14.8	0.0	9.2	1.0	2.2	3.6	5.0	1.0	0.0
9	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0
10	0.2	1.2	36.6	9.6	0.2	7.6	1.6	1.8	0.0	65.8	1.0	1.0	1.8	4.0	5.8	0.2
11	0.0	0.0	4.6	1.0	0.4	0.6	0.8	0.0	0.0	0.0	11.6	1.2	0.6	0.0	0.4	0.0
12	0.2	0.2	0.0	0.8	14.6	0.0	0.0	0.0	0.4	0.0	1.4	7.8	0.2	0.6	0.4	0.0
13	0.2	0.0	1.0	1.4	0.2	3.0	0.4	1.4	0.0	0.6	1.4	3.2	189.6	2.0	0.2	1.2
14	0.0	0.0	0.8	3.0	0.2	5.0	0.0	2.4	0.0	8.2	0.4	0.8	0.0	13.4	2.8	0.6
15	0.4	0.0	9.0	6.2	1.8	11.0	0.0	1.2	0.0	2.2	0.2	0.8	0.0	1.6	50.0	0.2
16	0.6	0.0	0.2	0.4	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.6	1.8

Table 20. A matrix of mean tallies per student of the 31 control students in the practical arts on each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2.3	0.2	0.8	0.8	0.1	1.1	0.0	0.8	0.0	0.2	0.2	0.6	1.5	0.1	0.3	0.0
2	0.2	0.5	2.3	1.5	0.1	1.1	0.0	0.4	0.1	0.2	0.2	0.3	0.5	0.2	0.1	0.1
3	1.7	4.0	67.4	13.1	0.0	5.0	1.3	5.3	0.2	9.2	1.8	2.9	3.8	3.1	3.2	0.6
4	0.4	0.0	1.4	9.2	0.0	1.6	0.0	9.2	0.1	30.3	0.4	2.5	1.3	6.8	0.1	0.4
5	1.2	0.1	2.4	2.8	19.4	2.1	0.5	2.1	0.3	2.2	1.4	6.5	6.9	1.2	1.3	0.5
6	0.5	0.5	0.5	9.2	0.0	172.0	0.1	6.1	0.4	1.4	1.3	2.5	8.5	3.8	2.6	0.3
7	0.1	0.0	1.9	0.8	0.0	0.4	1.8	0.5	0.2	3.8	0.0	0.2	1.1	1.3	0.2	0.1
8	0.5	0.2	0.9	2.2	0.1	3.8	0.3	47.6	1.1	16.6	0.9	1.7	13.8	4.2	0.8	0.6
9	0.0	0.0	0.4	0.3	0.0	0.8	0.0	0.8	0.9	0.3	0.2	0.5	0.4	0.3	0.2	0.2
10	0.8	1.3	34.2	7.3	0.4	3.0	6.4	5.2	0.8	64.8	1.2	2.8	5.2	5.5	1.8	0.4
11	0.5	0.2	3.5	1.0	0.2	0.8	0.2	0.5	0.4	0.1	8.2	1.3	3.6	0.2	0.2	0.1
12	0.1	0.1	0.2	1.0	30.2	0.1	0.2	0.1	0.1	0.1	0.5	10.3	0.2	0.5	0.3	0.1
13	0.3	0.4	2.6	8.0	0.0	8.5	0.6	10.9	0.2	2.5	4.2	9.5	305.2	0.5	1.5	1.5
14	0.2	0.0	1.6	4.0	0.3	5.3	1.2	3.5	0.2	8.5	0.2	1.5	1.1	13.7	0.3	0.1
15	0.2	0.0	2.3	1.8	0.2	3.4	0.0	1.2	0.1	0.4	0.3	0.2	2.8	0.1	36.9	0.1
16	0.1	0.1	0.2	0.5	0.0	1.1	0.0	1.0	0.3	0.3	0.1	0.4	0.8	0.0	0.2	1.9

Table 21. A matrix of mean tallies per student of the 24 experimental students in the science and math of each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0.9	0.0	0.5	0.6	0.0	1.0	0.0	0.0	0.1	0.9	0.1	0.2	0.0	0.1	0.0	0.0
2	0.1	0.3	1.4	5.6	0.1	1.0	0.5	1.6	0.1	2.1	0.6	0.9	0.4	0.4	0.0	0.3
3	0.9	7.9	36.1	17.3	0.3	10.0	0.9	13.7	0.3	26.1	1.9	4.0	0.6	2.3	1.0	0.9
4	0.3	0.1	0.9	18.4	0.0	3.1	0.0	11.5	0.1	47.8	0.9	1.1	0.1	7.8	0.3	0.4
5	0.1	0.1	2.8	3.1	22.0	2.6	0.1	1.8	0.0	1.6	2.6	7.6	1.8	0.8	0.6	0.6
6	0.5	0.0	0.6	13.8	0.0	172.9	0.1	11.3	0.3	15.1	0.4	2.9	3.1	1.6	1.9	0.4
7	0.0	0.0	2.8	1.1	0.1	0.6	1.9	1.8	0.1	7.0	0.0	0.3	0.3	0.4	0.0	0.1
8	0.1	0.3	0.7	4.1	0.0	4.6	0.0	17.3	0.8	95.0	0.4	1.4	3.6	6.5	0.6	0.1
9	0.0	0.0	0.2	0.8	0.0	0.2	0.5	1.0	1.1	0.8	0.0	0.1	0.0	0.3	0.0	0.0
10	1.3	6.1	70.0	17.3	0.0	19.1	11.3	63.0	1.6	141.3	1.5	3.5	7.1	3.9	6.1	2.2
11	0.0	0.3	3.9	1.6	0.3	1.3	0.1	0.1	0.1	0.3	1.3	4.3	0.9	0.0	0.0	0.5
12	0.0	0.0	1.0	1.3	24.3	0.0	0.0	0.3	0.0	0.1	0.3	10.4	3.4	0.4	0.0	0.0
13	0.1	0.0	0.4	1.0	0.0	2.5	0.3	1.9	0.1	5.5	5.0	7.1	67.9	0.8	0.0	0.4
14	0.0	0.3	1.5	4.9	0.0	2.8	0.3	4.9	0.0	10.8	1.0	0.5	0.1	12.8	0.1	0.3
15	0.0	0.1	0.4	1.0	0.0	2.5	0.0	5.0	0.0	1.6	0.0	0.0	0.3	0.0	22.4	0.0
16	0.3	0.0	0.6	1.3	0.0	0.8	0.0	0.8	0.1	0.8	0.1	0.3	0.6	0.0	0.3	4.8

Table 22. A matrix of mean tallies per student of the 24 control students in the science and math of each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2.0	0.0	0.3	0.3	0.0	0.3	0.3	0.5	0.5	0.3	0.0	0.0	0.3	0.0	0.0	0.0
2	0.3	2.8	5.5	14.3	0.0	4.0	0.8	11.8	0.0	1.5	0.0	0.5	0.0	2.3	0.3	0.3
3	0.3	6.3	26.3	24.0	0.0	6.8	0.5	8.8	0.0	10.0	0.0	2.3	1.0	1.3	1.0	0.5
4	0.3	0.0	1.0	0.3	0.3	1.8	0.3	39.0	0.0	57.0	0.0	1.0	1.8	5.6	0.3	0.0
5	0.0	0.0	1.0	1.8	12.8	1.5	0.3	2.5	0.0	2.3	0.3	3.3	1.8	1.5	0.0	0.3
6	0.8	0.5	0.5	10.5	0.0	113.5	0.0	7.5	0.3	3.0	0.0	1.8	0.3	1.5	1.8	0.5
7	0.0	0.3	2.5	0.8	0.0	0.3	3.3	2.0	0.3	15.5	0.0	0.3	0.8	0.8	0.0	0.3
8	0.0	0.3	0.3	7.8	0.0	1.5	0.0	25.8	0.0	159.0	0.0	0.2	4.8	17.0	0.0	0.3
9	0.0	0.0	0.0	0.3	0.0	0.8	0.0	1.0	2.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
10	1.3	31.8	48.3	36.0	0.3	5.0	20.3	108.8	1.0	83.5	0.0	3.0	28.5	11.0	0.0	1.5
11	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.5	15.8	0.0	0.3	0.3	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
13	0.3	1.8	0.8	5.0	0.0	0.8	0.5	2.0	0.0	28.3	0.0	1.8	64.5	1.0	0.0	0.3
14	0.0	0.5	1.3	5.5	0.0	4.0	0.5	6.5	0.3	19.8	0.0	0.8	3.3	46.5	0.0	0.3
15	0.0	0.0	0.5	0.5	0.0	1.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	7.5	0.0
16	0.0	0.0	0.0	0.8	0.0	0.8	0.0	1.8	0.0	.03	0.0	0.3	0.0	0.3	0.0	2.8

Table 23. A matrix of mean tallies per student of the 24 experimental students in the foreign language of each of the 16 categories (Mean tallies have been computed to the nearest tenth).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0.3	0.0	0.3	0.3	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.5	0.3	0.3	0.3	0.1
2	0.3	0.5	2.7	1.9	0.0	0.6	0.0	0.1	0.0	0.5	0.3	0.3	0.2	0.2	0.9	0.1
3	1.1	5.5	97.5	22.5	0.1	13.4	1.1	6.1	0.2	13.9	1.9	3.3	0.7	4.8	9.9	0.6
4	0.3	0.1	2.5	19.8	0.1	3.0	0.1	9.9	0.1	56.7	0.6	1.6	0.3	13.0	1.9	0.1
5	0.4	0.1	2.6	3.1	33.7	4.9	0.1	0.5	0.5	1.6	1.3	7.7	2.8	1.3	1.1	0.6
6	0.6	0.0	3.7	19.3	0.0	250.0	0.3	3.9	0.5	3.1	0.3	5.8	1.9	3.1	11.6	0.4
7	0.0	0.1	1.6	7.3	0.1	0.9	1.9	0.2	0.1	1.2	0.2	0.1	0.0	0.3	0.1	0.0
8	0.3	0.0	0.9	2.4	0.1	1.9	0.0	8.6	0.5	14.9	0.5	0.7	3.3	3.0	0.6	0.2
9	0.0	0.0	0.3	0.3	0.0	1.0	0.0	0.3	3.7	0.5	0.1	0.3	0.9	0.3	0.1	0.2
10	0.3	1.6	63.3	18.6	0.2	7.4	3.3	2.1	7.3	60.3	1.4	2.6	1.9	3.3	6.0	1.1
11	0.1	0.3	3.1	1.6	0.2	0.3	0.3	0.2	0.1	0.1	11.4	1.0	3.9	0.1	0.3	0.2
12	0.1	0.2	0.4	0.9	27.3	0.0	0.1	0.0	0.1	0.2	0.5	15.3	0.5	0.4	0.1	0.0
13	0.1	0.0	0.6	1.6	0.1	2.4	0.0	2.0	0.6	1.3	3.7	4.1	130.9	0.2	0.2	0.6
14	0.4	0.0	2.9	7.1	0.3	4.5	0.1	3.5	0.3	7.7	0.4	1.5	0.2	19.3	2.8	0.3
15	0.3	0.1	8.6	8.7	0.3	13.0	0.0	0.4	0.1	1.8	0.2	0.9	0.2	1.5	42.5	0.3
16	0.0	0.0	0.4	0.6	0.0	1.6	0.0	0.3	0.3	0.2	0.2	0.4	0.3	0.1	0.3	4.3

BIBLIOGRAPHY

1. Bigge, M. L., and Hunt, M. P., Chapter 8, "What is Adolescence," and Chapter 9, "What are Needs and 'Developmental Tasks' of Children and Youth?", *Psychological Foundations of Education*, Harper and Row Co., New York, Evanston, and London, 1964.

2. *Biomedical Computer Programs*, University of California, Los Angeles. Edited by W. J. Dixon, 1964.

3. Conant, James B., *The Education of American Teachers*, New York: McGraw-Hill Book Company, Inc., 1960.

4. Flanders, Ned A., "Teacher Influence, Pupil Attitudes and Achievement," *Final Report*; 1960, University of Minnesota; Project 397; United States Department of Health, Education and Welfare; Cooperative Research Programs; Office of Education.

5. Flanders, Ned A., *Teacher Influence, Pupil Attitudes and Achievement*, Cooperative Research Monograph No. 12, Washington, D. C.: United States Government Office, 1965.

6. Fulligar, W. A., Lewis, H. G., and Cumbee, C. F., *Readings for Educational Psychology*, "Experiments on Autocrats and Democrats Atmosphere," Thomas Y. Crowell Company, New York, 1964.

7. Kneller, George F., *Educational Anthropology, An Introduction*, John Wiley and Sons, Inc., New York, 1965.

8. Koerner, James D., *The Miseducation of American Teachers*, Boston: Houghton-Mifflin Company, 1963.

9. Ohles, John F., "A Danish Experiment in Practice Teaching," *The Journal of Teacher Education*, 11:40, March, 1960.

10. Ryans, David G., *Characteristics of Teachers: Their Description, Comparison, and Appraisal*, Washington, D. C.: American Council on Education, 1960.

11. Scott, W. A., "Reliability of Content Analysis: The Case of Nominal Coding," *The Public Opinion Quarterly*, 1955.

12. Scrivner, A. W., "Professional Laboratory Experiences," *The Journal of Teacher Education*, 12:48-53, March, 1961.

13. Shuck, Emerson, "Field or Laboratory Experience in Teacher Education," *The Journal of Teacher Education*, 12:29-35, March, 1961.

14. Talsuoka, Maurice M., and Tiedman, David V., "Statistics as an Aspect of Scientific Method in Research on Teaching," Handbook of Research on Teaching, The American Educational Research Association, Chicago: Rand McNally and Company, 1964.

15. Wilhelms, Fred T., "The San Francisco State College Teacher Education Project," The Journal of Teacher Education, 12:209-215, June, 1961.